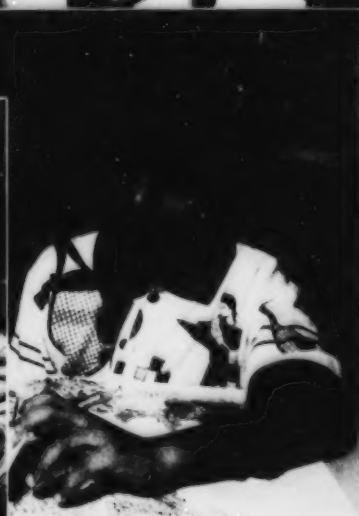

Challenge for Excellence:

Enrichment and Gifted Education Resource Guide

Student Services Series




NOVA SCOTIA
Department of Education

Challenge for Excellence

Enrichment and Gifted Education Resource Guide

Challenge for Excellence: Enrichment and Gifted Education Resource Guide

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Introduction

... Society gains from the advancement of all abilities and from the highest development of all its members, whatever their strengths. That which nurtures and actualizes each individual nourishes us as a society.

(Clark 1992)

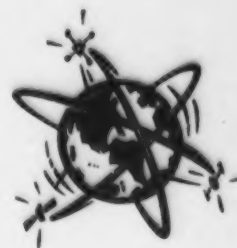
Introduction

The rationale for developing and implementing programming for students with gifts and talents can be drawn from the Department of Education and Culture's *Public School Programs: 1998-99*—

...Fundamental changes are occurring in the world. The economy is becoming more diversified and is placing a greater emphasis on information-based enterprises, global competitiveness and sustainable development. Society is becoming more diverse in family structure, language, culture, values and perspectives. There is a growing awareness of global interdependence among peoples and nations. Nova Scotia's future is becoming more reliant upon partnerships and collaboration ... in this changing environment, all children in Nova Scotia need a broad based, quality education. Quality in education is demonstrated by the excellence of individual courses, programs and shared experiences. Quality is also demonstrated by the diversity of educational experiences in which students are actively involved and by the extent to which individual student's needs are met.

While the educational system strives to provide and facilitate a wide range of educational experiences and opportunities, there are students who require extended challenges in order to meet their full potential. Winebrenner and Devlin (1994) note that students with gifts and talents need exactly what all other students need, "consistent opportunity to learn new material and to develop the behaviours that allow them to cope with the challenge and struggle of new learning." Alternative program planning is as important for gifted students as it is for any student with special needs.

Underachievement among gifted students is a major challenge with which educators must come to terms. Being a "gifted student" and being a "school drop-out" appear as contradictory terms. Yet students with gifts and talents do form a segment of the school drop-out population. Even gifted students who appear to be achieving may not be sufficiently challenged in terms of reaching their potential or developing and extending their learning. "Before placing blame on students, it is best to look also at the curriculum with which they are presented. Perhaps in the final analysis underachievement is learned because it is taught so well, and so often" (Delisle 1992).



Being a "gifted student" and being a "school drop-out" appear as contradictory terms. Yet gifted students do form a significant segment of the school drop-out population.

(Delisle 1992)

With appropriate program planning, the possibility for a gifted student to reach his/her potential increases. Providing programs and services for students with gifts and talents requires planning at each level of the school system. The purpose of this guide is to assist school boards in developing programs and services for students with gifts and talents in their regions. The guide is divided into the following sections:

Inclusive Schooling and School Wide Enrichment

Identification Process

Program Planning

Professional Development

Appendices

Bibliography

Inclusive Schooling and School-Wide Enrichment

A mind once stretched never returns to its original shape.

(Oliver Wendell Holmes)

Inclusive Schooling and School-Wide Enrichment

Introduction

School-wide enrichment provides a foundation of support to students with gifts and talents while enhancing educational opportunities for all students. The expertise and skills that are abundant in any school community are often untapped to their full potential. School-wide enrichment is a basis for forming meaningful linkages with the community.

It is not always possible to predict which speaker, workshop, presentation, or hands-on experience will ignite a spark in a particular student—a spark that can lead a student into areas previously unknown. Different kinds of learning experiences impact student motivation in diverse ways.

Enrichment experiences comprise more than presentations by occasional speakers or the occasional workshop. The teacher has a role in extending the learning opportunities that a speaker or workshop may provide. The following example illustrates this point:

Your students had the opportunity to listen to a bone specialist talk about the human skeleton. She brought in a model of a skeleton to help illustrate her points to the students. Your class appeared quite interested and many raised good questions. However, one young boy, Jesse, asked unusual and probing questions and seemed captivated by every intricate detail of the discussion. Even the speaker commented to you that Jesse exhibited a keen interest and understanding unusual for children of his age.

Jesse came to class the next day carrying the skeletal framework of the skull of a moose or larger deer which his father had come across one day on a walk in the woods. Now as a teacher you know you have a highly motivated student. *Carpe diem!*

There are a variety of ways to proceed. Talk with Jesse and brainstorm with him possible ideas for an extended learning experience on bones (a five-minute exercise). He might want to create a learning centre on the human skeleton to share with younger children. This would require Jesse to conduct research and explore the topic before embarking on such a venture. After the research is completed, Jesse is ready to put together his learning centre. The centre would contain his original work and might include fact cards, pictures, a large puzzle of a human skeleton along with an audio tape



and Jesse as the skeleton, doing the talking, asking the children to put him back together again! Crossword puzzles and a tub of home-made creative clay could also be included. Use of the Internet to research and a multimedia presentation could also be explored. The teachers of other grades could invite Jesse to work with their students in small groups sharing his centre on skeletons and his enthusiasm with them thus creating a learning experience for all the students!

This illustrates how a single guest speaker can be the starting point to further adventures in learning. A speaker's visit may have an impact on the learning of one student, a group of students, or perhaps your whole class! Speakers can provide the springboard into meaningful extensions of learning.

The approach seeks to develop high levels of multiple potentials in a broad range of students.

(Phi Delta Kappan 1998)

A school-wide enrichment team is an invaluable support for teachers in organizing and planning extensions of learning for students. Such a team could be made up of the school principal, teachers, parents, community participants, and students where applicable. Existing workgroups, such as individual program planning teams and school improvement teams also could be utilized. (See Appendix A, *Developing inclusive Schools Process for School Based Meetings.*)

The school-wide enrichment team knows the resource base of the school community and acts as the catalyst for enrichment opportunities at the school and classroom level. Teachers should consider what kinds of enrichment experiences enhance student learning. Guidance in addressing school-wide enrichment can be found in Renzulli and Reis (1997), *The Schoolwide Enrichment Model: A How to Guide for Educational Excellence*, which outlines "a systematic set of specific strategies for increasing student effort, enjoyment, and performance and for integrating a broad range of advanced learning experiences and higher-order thinking skills into any curricular area, course of study, or pattern of school organization."¹ A planning guide may help teachers and the enrichment resource team to track their school programming experiences and activities. (See Appendix B, *Action Form 3—A Planning Guide.*)

School-Wide Enrichment

- provides opportunities for students to explore many areas of study and to engage in creative and critical thinking and problem solving (See Options in Programming: Process.)
- helps students identify their own areas of strengths and interests
- provides students with ways to further develop these strengths
- enables students to experience diverse learning environments
- strengthens ties with the community and utilizes local expertise
- assists teachers to evaluate the teaching and learning process to ensure that student needs are met

Ideas for School-Wide Enrichment

Exploratories

Exploratories are periods of time designated for enrichment activities. For example, one week in the first term and one week in the second term would be built into the school schedule as enrichment blocks of time. A school might designate Wednesday afternoons for enrichment programming. For example, each staff member or students, could give workshops about a particular interest or area of expertise. Students choose topics of interest independently by signing up for a number of workshops that rotate throughout the day.

Seminars

Seminars enable students to explore a topic in an in-depth, concentrated way over a short period of time. Seminars are guided by teacher-mentors who support students to analyse, synthesize, and evaluate information in an inquiry based format.

... the seminar is an ideal opportunity to explore and investigate independently and then share ideas with other students ... the teacher becomes part of the discussion group, sharing in the discussion group, sharing in the inquiry process instead of serving as information on disseminator.

(Dixon 1994, 12)

School-Wide Challenges

School-wide challenges stimulate creative and critical thinking and problem solving. The school might announce a five-minute brainstorming blitz where each class is to come up with as many responses as possible to the posed challenge; for example, "In what ways are ski hats like swim fins?" More defined challenges can also be organized in a given curriculum area; for example, a mini-science Olympics where students work in teams to solve intriguing challenges.

Speaker's Bureau

Schools might tap into areas of expertise and interest in the community by sending home a Community Resources Survey. (See Appendix C-1, *Community Resources Survey*.) Having a guest visit your class initiates opportunities for other meaningful learning activities. The experience should never begin and end with the speaker's presentation, but have a meaningful place in the curriculum planning process that provides for opportunities to integrate and extend learning.

Learning is its own
exceeding great reward.

(Hazlitt 1828)

Exchanges

Within a school or across regions, student and teacher exchanges enhance learning opportunities and introduce new environments and ideas. With increased accessibility to technology, students can exchange information and ideas through the Internet and video conferencing.

Learning Centres

Learning enrichment areas, or learning centres, provide additional opportunities to explore and examine particular concepts, issues, or themes. For example, a centre on gravity could include research information (print, software, Web sites), videos of interviews and space travel, hands-on experiments and problem-solving activities.

The centre serves as a resource for those who may be engaged in independent work either assigned by the teacher or self-initiated. Students should be encouraged to propose ideas for topics or areas of interest.

Weekend/Noon Time Workshops

Community involvement is a critical component in launching Weekend/Noon Time Workshops. These workshops could explore several topics or focus on one issue or theme. Not only are learning opportunities extended for students through such an initiative, but students are able to see others in the community as mentors or instructors with many skills and much expertise to offer young people. Building linkages with positive adult role models within the community can be beneficial to all parties concerned. (See Appendix D, *Sample of a Weekend Program*.)

Please see Options in Programing (p. 30) for more ideas on how to extend learning for all students.

Identification Process

So precious a talent as intellect never was given to be wrapt and buried in the earth.

(Angeline Brimke)



Identification Process

A Holistic Perspective

This section outlines a variety of issues and perspectives to consider in the identification of students with gifts and talents. A holistic approach, including academic, social, emotional, cultural, and behavioural perspectives, is critical to a comprehensive identification and assessment process.

Often students with gifts and talents are viewed only in terms of academic performance and achievement. It is critical that educators also nurture the social and emotional development of gifted students. Every exceptionality brings with it a myriad of complex issues which must be recognized and addressed.

Students with gifts and talents often have difficulty in social interactions with their age peers and may become socially isolated. Coleman and Sanders (1993) note that there is no empirical evidence that these students have different social needs than their peers; however, their experiences in growing up may be atypical.

We do know that growing up gifted is not the same as growing up as a typical teenager because children who are gifted possess abilities which put them outside the norm ... a child who is gifted encounters reminders that some aspects of him or herself are more acceptable than others. The child begins to comprehend that knowledge of his or her difference by others is potentially discrediting because that knowledge interferes with normal social interactions.

There is other evidence that teenagers who are gifted do attempt to manage the information others have about them. When presented with a series of scenarios describing students in some typical situations, we discovered that teenagers who were gifted generally tried to mask their giftedness.

(Coleman and Sanders 1993)

In young children, knowledge and understanding of social interactions is not as sophisticated. Consequently, advanced conceptualization and linguistic competence can produce tension among peers. The following example illustrates the point:

Joey was a young four-year old who thrived on challenging himself at all times. Joey did not get along with other four-year olds for many reasons. When they played dinkies by running the vehicles around and crashing them, Joey was discussing the vehicles in terms of rear-end suspension, cylinders, transmission, etc. He was reading the newspaper daily, especially the car

advertisements. His memory was profound and he could recite the license plates of visitors to his home as he played around on the floor. Joey attempted to socialize with the older kids in the neighbourhood—seven and eight year olds. But this did not work either. As the children would play a very unstructured game of kicking around a soccer ball, Joey would interrupt to explain the proper rules and procedures of the game—and he was adamant about them. The children soon learned that they would have to go elsewhere to enjoy the game. Again, Joey was left alone.

Students with gifts and talents may challenge generalizations and appear to be rebellious toward authority. They may be the ones to interrupt the teacher by taking exception to what is being taught. For example, a young boy argues with his teacher that the Chinese, not the Germans, invented printing. A strong sense of social justice, morality, and sense of fairness may also lead gifted learners to challenge generalizations and common assumptions.

Belonging overshadows achievement.

(Mendaglio 1993)

One female junior high student, Marie, was deeply engaged in investigating the rain forest and all the environmental issues which accompanied this study. She was from a coal-mining community and had heard David Suzuki speak of the environmental hazards involved in the mining of the coal. Thus the dilemma. She explained: "How can I make judgements on what is happening in the rain forest and ignore what is happening in my own backyard? Yet how can I be critical of this local issue when I know my family makes its living through the mining of coal?"

Being gifted and female can create its own set of challenges. Society's aspirations and expectations for males and females often lead females to suppress their abilities and begin to develop patterns of low self-esteem and achievement ... gifted girls are in dire danger of behaving according to the stereotype constructed for them by the culture (Gallagher 1975). Identification of gifted females requires particular attention. Research has shown that gifted females tend to hide their talents and play socialization roles of adapting, pleasing, and generally fitting in. Mendaglio (1993) notes that the "underground" gifted are generally, but not always, female and that, for them, belonging overshadows achievement. Further, decreases in self-esteem and self-confidence in gifted females have been identified with increases in age during adolescent years (Kline and Short 1991).

Students with gifts and talents can become intensely focussed on a topic or an area of interest. They may be unwilling to leave this area of interest and may be viewed as being self-absorbed or self-centered. They may also be perfectionists and not give themselves credit for an achievement unless they feel it is perfect. Avoidance behaviour can result as the student rationalizes, "If I don't try, I can't fail." Students may find it easier to avoid a task than to show concerted effort and not excel. It is important to provide positive and supportive learning opportunities to encourage risk taking.

It has been estimated that students with gifts and talents are engaged in learning for only 50 percent of their school day in elementary classrooms when there is no attempt to extend the curriculum (Hollingsworth 1990). If the student is not involved in learning on a consistent basis, respect for the learning process is not developed. The situation could result in poor study habits, inappropriate behaviour (class clown or bully), a "psychological" dropping out of school, and the ultimate withdrawal—quitting school. Research has shown that up to 20 percent of all high school drop-outs may be gifted (Davis and Rimm 1985).

The surest path to high self-esteem is to continuously be successful at learning tasks they perceived would be difficult! Each time we "steal a student's struggle," we steal the opportunity for them to develop high self-esteem.

(Rimm 1986)

Definition and Characteristics

The following definition was adopted by the Nova Scotia Department of Education and Culture in 1992:

The term "gifted" refers to students who give evidence of outstanding performance capability in areas such as intellectual, creative, artistic, or leadership, or in specific academic fields.

There is no one profile of a gifted learner. This section expands the definition to include characteristics of students who may be identified as being gifted. **The characteristics are not all inclusive and students with gifts and talents may not exhibit all of these characteristics at any given time.** Schools that implement school-wide enrichment are able to develop opportunities and experiences for students to meet multiple potentials. It is recognized, however, that some students will require individual program plans to address their needs. The process of identification should assist in determining strengths and needs to form the basis for program planning. It is not for the purpose of labelling or streaming students. Renzulli (1997) notes the difficulty in traditional identification procedures which have often restricted services to "small numbers of high scoring students and excluded large numbers of at risk students."

Our vanity desires that what we do best should be considered what is hardest for us.

(Nietzsche 1986)



Intellectual/Cognitive Aptitude— has superior reasoning ability

Characteristics	Does the student
• questions critically • constructs abstractions • learns rapidly and easily • thrives on complexity • analyses, evaluates and synthesizes information • thinks analogically • demonstrates precocious language and thought	• ask many questions? • have a wide general knowledge? • become unusually upset at injustices? • seem interested in and concerned about social or political problems? • often have a better reason than you do for not doing what you want done? • show disinterest in repetitive tasks? • engage in multiple tasks simultaneously? • become impatient if work is not "perfect"? • seem to be a loner? • complete only part of an assignment or project and then take off in a new direction? • appear restless or daydream? • like solving puzzles and problems? • have his or her own idea about how something should be done and stay with it? • use metaphors and abstract thinking? • enjoy debating issues?

Example

The following example is illustrative of a student displaying some of the above characteristics.

One night, a mother was reading some poems by Shel Silverstein to her 5-year-old son. She read the following poem and stopped after the 4th line.

Who wants a pancake,
Sweet and piping hot?
Good little Grace looks up and says,
"I'll take the one on top"
Who else wants a pancake,
Fresh off the griddle?
Terrible Theresa smiles and says,
"I'll take the one in the middle."



The following conversation then took place:

Mother: "Now where would someone named "Terrible Theresa" take the pancake from"?

Son: "Oh, from the middle, of course."

Mother: "Why would you say that"?

Son: "Because the middle is the hottest."

Mother: "How do you know that"?

Son: "It's the same as the Earth. At the core it's the hottest, just like the stack of pancakes."

He quickly made an abstraction from a seemingly unrelated topic to problem solve on an independent basis. The reply is indicative of his ability to analyze and evaluate information and to think analogically, which is characteristic of many students with gifts and talents.

Specific Academic Aptitude—

demonstrates the characteristics of advanced intellectual/cognitive ability in one or more subject areas

Characteristics	Does the student
• produces qualitatively superior outcomes • shows intense interest and/or commitment to a topic/focus • demonstrates advanced/sophisticated knowledge and understanding • learns easily in particular subject area(s) • obtains high success in subjects of interest • connects idea(s)	• show unusual ability in a particular area? • show fascination with one field of interest? manage to include this interest in all discussion topics? • enjoy meeting or talking with experts in this field? • solve problems with ease, but may find it difficult to explain his/her thinking process? • analyse and evaluate information? • invent obscure systems and codes?

Creative—

consistently engages in divergent, original thinking that results in unconventional responses to conventional tasks (Johnson 1992)

Characteristics	Does the student
- creates, designs, invents - thinks independently - makes jokes and puns at unexpected times - takes risks and speculates - demonstrates a certain intellectual playfulness; gives free rein to imagination	- try to do things in different, unusual, imaginative ways? - have a bizarre sense of humour? - enjoy new routines or spontaneous activities? - thrive on variety and novelty? - create problems with no apparent solutions and enjoy asking you to solve them? - pose controversial and unusual questions? - have a vivid imagination? - seem never to proceed sequentially?

Example

It was the second day of school and the grade two children stared openly at a newcomer: six-year-old Charlie, who had been moved abruptly into their room after one day in grade one. Charlie tried to relax by concentrating on his stamp collection at home, remembering his lengthy correspondence battle the previous year with one company. (Dear Sir: I plan to take you to court unless your nuisance bills stop immediately for stamps that I have not ordered. I am five years old.) Just then the teacher picked up something from the floor. "Who dropped an eraser?" Charlie tried to stifle a giggle. The teacher, reddening, demanded to know the joke. The new boy looked around the class and again giggled: "Who shaves around here"? ... he found humour in puns that went over the heads of all his classmates — and sometimes the teachers too.

(CEA Survey 1980)

"Do dinosaurs have hair in their nostrils?"

(Grade 4 Student)

**Artistic—**

demonstrates outstanding ability in the visual and performing art

Characteristics	Does the student
- expresses intense feelings, thoughts and moods through art, drama, music and/or dance - produces original products - sophisticated use of techniques, media - critiques work for self and others - takes advantage of open-ended assignments as a means of producing artistic interpretations	- display abilities in the arts (music, dance, drama, painting, etc.) without formal instruction? - experiment with new materials, use unique combinations? - compose and create original music, dance, drama, art? - observe minute details in products or performances? - assume quickly the role of a character and imitate or mime people or animals? - have high sensory sensitivity? - draw or sculpt objects in a different way from other students? - build depth into drawings, plan the layout of pictorial elements and use correct proportions?

Example

When he was three years old, Yehudi Menuhin was smuggled into the San Francisco Orchestra concerts by his parents. The sound of Louis Persinger's violin so entranced the youngster that he insisted on a violin for his birthday and Louis Persinger as his teacher. He got both. By the time he was ten years old, Menuhin was an international performer.

(Menuhin 1977)

Violinist Yehudi Menuhin's musical intelligence manifested itself even before he had touched a violin or received any musical training. His powerful reaction to that particular sound and his rapid progress on the instrument suggest that he was biologically prepared in some way for that endeavour.

(Gardner 1993)



In music class the child's voice rises over the other; in art, the child's hand reaches for the colours which link the picture to the child's imaginings; in drama, the simple response asked for by the teacher is turned by the child into a dramatic presentation.

(Gardner 1993)

Leadership—

demonstrates outstanding ability to lead

Characteristics	Does the student
• is assertive • demonstrates self-confidence • organizes people, events with ease • motivates others • interprets political/social context • facilitates teamwork • directs, may tend to dominate • adapts to new situations readily • is accepted by peers as a leader • uses synergy • sees the "big picture" • communicates effectively • facilitates action • is resourceful • perseveres	• organize and lead group activities? • sometimes take over? • demonstrate a confident, self-assured attitude? • take risks? • seek actively a decision-making role? • synthesize ideas and information from many different sources?

Multiple Intelligences

Students demonstrate giftedness in many areas and in many ways. "It is of the utmost importance that we recognize and nurture all of the varied human intelligences, and all the combinations of intelligences" (Gardner 1987). Work on multiple intelligences by Howard Gardner, of the Harvard Graduate School of Education, has revolutionized the concept of intelligence. He presents a view of intelligence as multi-faceted, and focuses on "the capacity for (1) solving problems and (2) fashioning products in a context rich and naturalistic setting" (Armstrong 1994).

Gardner's theory of multiple intelligences identifies seven categories of "intelligences." However, it should be emphasized that these "intelligences" rarely exist in isolation; there is constant interaction among them. Armstrong (1994) gives an example of this interaction when describing intelligences used to play the game of soccer: e.g., bodily kinesthetic (to run, kick and catch), spatial (to orient to the playing field and the ball in space), and linguistic and interpersonal (to discuss rules and strategies and to play co-operatively). These seven intelligences are briefly described on the following page.²

Intelligence	Description
linguistic	• ability to use words effectively, orally and in writing • ability to manipulate the structure, sounds, and meanings of languages as well as the practical uses of language
logical-mathematical	• ability to use numbers effectively and to reason well • ability to recognize patterns, discern relationships, make if-then cause-effect connections, and other abstractions
spatial	• ability to perceive visual-spatial world accurately, to see line, shape, colour, form, space and the relationship among them • ability to form mental images
bodily-kinesthetic	• ability to use the body to express emotion and produce or transform things, play a game (as in a sport)
musical	• ability to perceive, discriminate, transform, express musical forms. This can be both intuitive and analytic
interpersonal	• ability to perceive and make distinctions in the moods, intentions, motivations, and feelings of other people • ability to communicate and co-operate
intrapersonal	• ability to know and understand self and to act on the basis of that knowledge • ability to discern connections with the larger order of things

Exploration of these "intelligences" and the implications for teaching and learning can lead teachers and administrators to develop a more in-depth understanding of human potential. This, in turn, provides educators with a more holistic perspective in the identification of students with exceptional abilities.³

All human beings possess these intelligences; therefore, these intelligences must be seen as potential ways to create meaning. While people have the potential to develop each of these intelligences, it is possible to have strengths or aptitudes in different areas. Thus, if education is viewed in terms of multiple ways of knowing, education must provide diverse opportunities for all students to develop these aptitudes and intelligences.

Obstacles in Identification of Giftedness

Identifying students who are learning-disabled and gifted can be problematic. Difficulties in conceptualization of the defining characteristics and in appropriate assessments often mask the potential for exceptional performance.

Obstacles in identification include the following (Sapon-Shevin 1986):

- stereotypic expectations
- inappropriate instructional processes which centre on traditional textbook-workbook or lecture exercise-test modes of instruction
- children's giftedness may allow them to compensate for their learning disability in such a way that their areas of difficulty are not readily apparent

Care must be taken, therefore, to carefully examine assumptions and stereotypes while considering each student's strengths and needs.

Students with gifts and talents are found within all socio-economic strata and all racial and ethnic groups. Students outside the dominant culture may exhibit characteristics of giftedness that may not be recognized in the school system. Historically, African Canadian and Mi'kmaq students have rarely been identified as gifted or talented. Indeed, because of racial stereotypes and systemic racism, many African Canadian students were relegated to the "Special Education" or "Behaviour Adjustment" classes although they may have exhibited characteristics of giftedness (Black Learners Advisory Committee Report on Education 1994). In addition, research has shown that standardized test scores and checklists of the characteristics of gifted students are not reliable predictors of potential among cultural minorities in North American schools. Howley (1986) states that "groups of people who have been systematically oppressed by society are unlikely to demonstrate the evidence of superior performance within the society."

Recent studies show that racially visible and ethnically diverse students continue to be under-represented in gifted education. Peterson and Margolin (1997) state, "We can see the consequences in the continued under representation of minority children in gifted programs, despite inclusive philosophies, attempts to create more culture-fair assessment instruments ... and admonitions about using multiple criteria for selection ... the selective distribution of positive labels in our schools parallels and supports the class differences and racial discrimination found in society as a whole ... " The Nova Scotia Department of Education and Culture is committed to equity and diversity and to maximizing the potential of all its students. In 1996, results from a Statistics Canada

survey showed that "children who are better off financially do better in school. Canada's poorest children are three times as likely, as the best-off children, to be in remedial classes, and the richest pupils are almost twice as likely to be in gifted classes as the poorest. Poor students are at greater risk of dropping out." ⁴ All schools must ensure that enrichment activities and programming involve students reflective of the school population and of Nova Scotia. Guidance counsellors, principals, and teachers must seek out and motivate gifted racial minority students as well as, students from all socio-economic backgrounds.

The following characteristics may be exhibited by students with gifts and talents. Caution should be taken to ensure that these characteristics do not exclude consideration of the need for enhanced or extended programming.

Students with gifts and talents may

- exhibit boredom with routine tasks and refuse to do rote homework
- focus on an area of study to such an intense degree that they refuse to move to other areas of study
- be self-critical, impatient with failures
- be critical of others, of the teachers
- disagree vocally with others, with the teacher
- make jokes or puns at inappropriate times
- be emotionally sensitive—may overreact, get angry or cry if things go wrong
- not be interested in details; produce messy, careless work
- refuse to accept authority, be nonconforming or stubborn
- tend to dominate others
- daydream
- appear disorganized and be easily distracted

(See Appendix E-1, *Parent/Guardian Information Form-Elementary* and Appendix E-2, *Student Interest Inventory-Elementary*.)

Students with gifts and talents may be the object of misunderstanding and hostility because they may think and act in ways that are not always understood.

Gifted students need to gain a feeling of self-worth and to develop a positive self-concept. They need to feel valued for their own sakes and not just for their accomplishments. It becomes too easy to talk to them and to others about their accomplishments and thus minimize the individual.

(Bienhler 1992)

Assessment

School boards policies should ensure that a combination of informal and formal assessment is used in assessing students to determine the need for program planning.

Assessments should be carried out by a school team including the student (as appropriate), parent(s), administrator(s), teacher(s), and specialist personnel (e.g., psychologists, school counsellors, consultant/supervisors) where appropriate. Early and continuous assessment ensures that the program developed meets the student's needs. School boards are responsible for ensuring that this process is developed and implemented.⁵

The following assessment guidelines may assist in developing and implementing the assessment process:⁶

- The assessment process must include multiple instruments, multiple contents, and multiple observers.
- The assessment process should be available to all students.
- Assessment procedures used should measure diverse abilities/intelligences.
- The assessment should be sensitive to the needs and experiences of male and female students, students with learning disabilities, and racially visible and ethnically diverse learners, notably African-Nova Scotian and Mi'kmaq students.
- Assessments should include information on potential as well as demonstrated abilities.
- Assessment procedures should correspond to the area(s) of ability being assessed.
- Assessment procedures should employ qualitative and quantitative information.

Possible sources of data to assist in the assessment process may include the following qualitative and quantitative measures:

Qualitative Measures

- anecdotal observations from parents, teachers, peers, mentors, community leaders, or students (self-nomination)
- checklists or inventories (see Sample Checklists)
- samples of students' work, e.g.:
 - unusual/exceptional solutions to problem-solving activities
 - consistently high achievement in relation to performance standards
 - writing samples, creative constructions, media productions
 - evaluations by mentors
 - adjudicated performance (e.g., science fairs, writing competition, music/theatre/drama performance)
- demonstrations of creative and critical thinking

The assessment process should be broad based and include all students who may require individual programming to meet their needs.

(Nova Scotia Department of Education and Culture)

Quantitative Measures

When qualitative measures do not yield sufficient information on the need for program planning, quantitative measures may be used to provide additional information.

Achievement and individual cognitive ability assessments are two examples of quantitative measures.

- Nondiscriminatory assessment procedures and instruments are essential in order to ensure that the assessment process is equitable across populations.⁷
- Parents and other professionals should be involved in the process of identifying the strengths and needs of the students. Such interactive involvement will ensure that all parties have input and an understanding of the process.⁸
- A systematic and ongoing plan to re-evaluate current assessment procedures should be employed.

The main purpose of the assessment process is to gather information for program planning to meet each student's unique learning needs. The following section on the development of a student profile may assist in this regard.

Developing a Student Profile⁹

Developing a student profile provides a deeper understanding of an individual's unique interests, styles, and abilities. By gathering information from a variety of sources, teachers and school-based teams are in a better position to make educational decisions that will enhance the student's development.

Means of gathering data include the following: observations of student performance; assessment of student products, portfolios, journals, and learning logs; informal and formal classroom testing; learning style inventories; interest inventories; rating scales of student characteristics; previous report cards; information from parents; and psycho-educational testing.

Five areas to consider are the student's

- academic achievement
- learning styles and strengths
- interests
- special abilities
- visions and goals for the future

Academic achievement tells us what the student knows and is able to do in various areas of the curriculum. Systematically observing a student during learning activities, analyzing student products, and using learning inventories are a few ways to gather information. In addition to academic achievement, assessment instruments that have a ceiling many years beyond the student's age level can provide information about the student's maximum

level of performance in relation to the items on the instrument. This information is valuable when selecting learning activities, materials, and environments that can provide a challenge.

Learning styles and strengths refer to the way a student approaches learning. The concept of learning styles is approached by different authors from a variety of perspectives.

Gardner's multiple intelligences theory describes seven different areas in which a student might show learning strengths. Kanevsky, Maker, Nielsen and Rogers (1994) devised a checklist that describes twelve characteristics associated with giftedness. (See Appendix F, *Sample Checklist*.) This checklist is intended to help teachers make systematic observations that can lead to assessment and identification of students with gifts and talents.

Interests of the students can provide a basis for curriculum development, extensions and independent studies. While teachers have many ways to find out about student interests, some published inventories can be helpful. *The Interest-A-lyzer* (Renzulli 1977), for example, is appropriate for middle and secondary school students (See Appendix E-2, *Student Interest Inventory-Elementary*.)

Special abilities refers to the student's talents that may or may not be exhibited through the school's curriculum. The student may have a special ability to take apart and put back together mechanical objects. Perhaps the student is an accomplished pianist, figure skater or actor. Special abilities can often be identified through knowledge of the student's hobbies, extracurricular activities and outside interests.

Vision and goals for the future are the student's personal values and hopes for the future. This includes the student's desired lifestyle, possible careers, and community interests set in the context of a long-term vision. Creating a vision or desired future provides the student and teachers with a focus for individual planning.

Program Planning

Not everything that counts can be counted and not everything that
can be counted counts.

(Albert Einstein)

Program Planning

Introduction

Diversity within school populations challenges schools to organize a system of program planning and support to meet the needs of all students. Public School Programs: 1998–1999 states that, “the curriculum must be adapted to meet the varying rates, patterns, and needs of all students from elementary through senior high school.” Adaptations for students with gifts and talents ensure that these students have opportunities to develop to their maximum potential.

Programming for students with gifts and talents must be driven by their learning needs. When there are no clear outcomes established for programming, there are no clear criteria for success. Curriculum development for students with gifts and talents should be viewed as an application of the same principles applied to good curriculum development generally; the central topic is not giftedness, but the adaptation of good design, instruction, and assessment practices to meet the enhanced capacities of the exceptional learner.

Programming supports may be provided in a variety of ways. Usually, such supports can be provided in the context of and related to the public school program of studies. The degree of differentiation required will be determined by the learner’s need.

Classroom teachers provide for many of the needs of gifted learners using enrichment activities, adapted instructional approaches, assessment strategies, learning environments and resources. However, the classroom and the public school program may not meet the needs of some students with exceptional abilities. When designated learning outcomes are changed to meet the needs of students or additional outcomes are developed, an **individual program plan** must be developed and implemented¹ (See Appendix G, *Individual Program Plan.*) (IPP)

Program planning includes the outcomes, methodology, evaluation and resources designed for a student. The following program design guidelines may assist developing programs and services to meet the needs of gifted learners.

Programming should

- be developed to meet the needs of individual students
- be articulated utilizing the learning outcomes framework as a base
- be comprehensive, structured, and sequenced
- be an integral part of the student’s school experience
- incorporate both enrichment and acceleration as required to accommodate student needs



- provide for the guidance as well as the academic needs of the students
- take full advantage of the special talents and interests of the teaching staff and the local community
- be facilitated by an administrative structure which supports the process, e.g., flexible scheduling, planning time

Options in Programming

A system-wide approach to programming for the gifted requires a variety of options/strategies and flexibility in meeting individual needs. Students spend the majority of their time in grade level/subject area classrooms. The program planning process is a support to the teacher and student in providing comprehensive and consistent programming.

The following section highlights some of the options that may be used in developing programming for students requiring extensions and enhancements.²

These are divided into the following sub-sections:

- **content** (what the student learns)
- **process** (how the student learns)
- **products** (how the student demonstrates what he/she knows)
- **learning environments** (where the student learns)

Content

The content of the curriculum consists of the facts, concepts, issues, problems, and themes that students study in their pursuit of learning. Students with gifts and talents may absorb material at a faster pace, work well with abstractions, make learning connections easily, and/or have interests more like those of older students.

The following organizational strategies provide opportunities for learners to learn at their own pace and level:

- acceleration
- telescoping
- compacting
- independent study
- learning centres
- weekend/summer programming

In addition, there are a number of curricular models that can be used to enhance content. Focussing on learning outcomes, recognizing time as a variable, and ensuring that students continually move ahead in their learning, reflect good teaching practice in general. For learning to be effective, experiences should build on what the student already knows and can do, and challenge the student to extend his/her learning into new areas.

Acceleration

Acceleration enables students to meet curriculum outcomes at a faster pace commensurate with their needs and abilities. Students can be accelerated by grade or by subject. In the latter case, a student in grade 6 may be engaged in working towards grade 7 specific curriculum outcomes in math while working towards language arts outcomes at grade level.

While some resist acceleration as a strategy, research supports the practice. Acceleration has been shown to be positive for both achieving and underachieving gifted learners in the majority of documented cases (Benbow and Stanley 1983; Kulik and Kulik 1992). In addition, the work of Julian Stanley and his colleagues at John Hopkins University has given us almost 20 years of data about student acceleration. The researchers have unequivocally concluded that, for highly gifted children, the long-term benefits of acceleration can far outweigh any disadvantages (Winebrenner 1992).

When employing accelerative practices, schools should consider the following:

- a careful assessment to determine areas in which prerequisite outcomes may not be complete
- an assessment of the student's social/emotional and behavioral strengths and needs
- a trial basis, during which time all parties should meet to decide how well the student is progressing (consultation should include the student whenever possible)
- gradual inclusion of the student into the next grade level in a way that is sensitive to or allows for the possibility that the student may not successfully make the transition. Although it is rare that the transition is not successful, precautions must be taken to ensure that the student feels no sense of failure in the process.

Research indicates that the most beneficial years for grade acceleration are prior to grade 3, and that acceleration should take place only once in elementary and once in high school (Winebrenner 1992).

In order for acceleration to occur, it is important that boards develop guidelines whereby teachers and school program planning teams can be guided in this decision-making process. Parents must be equal partners in helping to determine what (if any type of acceleration) would be beneficial to their child.³

Other options include the following:

Concurrent enrollment provides students with the opportunity to take university or community college courses while enrolled full-time in the public school system.

Advanced Courses. The department recognizes the importance of providing a wide range of learning experiences to accommodate the diverse needs of senior high students, and of promoting equitable access to educational experiences. At the grade 10 level, courses have been developed to provide all learners with access to a strong foundation of common educational experiences. These courses engage students in a variety of groupings and interactions as contexts for learning, and offer a range of experiences which provide both challenge and support.

To prepare students for a range of post-secondary destinations, grades 11 and 12 programs include course offerings that are increasingly specialized; as such, these grades are referred to as the specialization years. A list of advanced courses currently offered can be found in the most recent edition of the *Public School Programs*.

Requests for approval of locally developed courses as advanced credits will be evaluated with reference to the *"Advanced Courses: Interim Policy Guidelines,"* January 1999, and to the framework provided by the principles of learning, the essential graduation learnings, and the general and specific curriculum outcomes of related public school programs and courses.

The principal of a school that offers advanced courses is responsible for promoting and ensuring equitable access to such courses. Every effort should be made to ensure a diversity of students so that the enrolment in advanced courses reflects the gender balance and the racial, ethnic, and cultural diversity of the school population. Equitable access to and enrolment in advanced courses will be monitored by the school board and reported annually to the Department.⁴

The International Baccalaureate Program (IB) is a high school curriculum designed to meet the needs of students internationally. This may be offered to individual or small groups of students as a curriculum option in high school. Following is an excerpt from International Baccalaureate North America.

The International Baccalaureate Program (IB) is a comprehensive and rigorous two-year curriculum, leading to examinations, for students aged between sixteen and nineteen. Based on the pattern of no single country, it is a deliberate compromise between the specialization required in some national systems and the breadth preferred in others. The general objectives of the IB are to provide students with a balanced education; to facilitate geographic and cultural mobility; and to promote international understanding through a shared academic experience.

IB courses are recognized as advanced courses at grades 11 and 12 and may be credited towards graduation requirements whether taken as part of a complete IB Program or as discrete courses.

Early admission to post-secondary studies. With the co-operation of the university, a student may enter university early. The traditional entrance requirements may be waived in such special circumstances.

Challenge for credit. The Department of Education and Culture recognizes that students may have already acquired the knowledge, skills and attitudes that an existing course seeks to develop. Challenge for credit provides a process for students to demonstrate that they have achieved learning outcomes as defined in the most recent edition of *Public School Programs* and the curriculum guide for a directly related course. (See Appendix H, *Challenge for Credit: Interim Policy Guidelines*.)

Telescoping

Telescoping is reducing the amount of time allocated for a student to meet learning outcomes. Gifted learners may not need as much time as other learners to attain outcomes. For example, a student achieves/attains the outcomes for grades 8 and 9 math in one year. Telescoping can be used in conjunction with acceleration.

Compacting

Compacting is a strategy designed to streamline the amount of time the student spends on aspects of the provincial curriculum. This strategy allows students to demonstrate what they know, to do assignments in those areas where work is needed, and then move ahead in their learning. Starko (1986); Reis, Burns and Renzulli (1992); and Winnebrenner (1992) suggest the use of compacting to reduce unnecessary repetition and to "buy" time for the students to work on an individual project of their choice. It may also be used to extend work in a given topic.

To compact curriculum the teacher needs to

- decide what the student must know in the area being considered for compacting
- find out what the student already knows
- design learning experiences for the student to learn new material
- work with the student in developing an individual program plan that may include
- enrichment in the compacted area
 - enrichment in an area of interest
 - an independent study project

The process of compacting can be used to develop an Individual Program Plan (IPP) for students. A thorough presentation of compacting with lists of resources and places to obtain them is presented in Reis, Burns, and Renzulli (1992).

Independent Study

Independent study is a co-operative teacher student learning process.⁵ It is based on a learning plan and expected outcomes. As part of the plan the student collects, organizes, creates, and shares information. The student involved in independent study works within a framework of these learning outcomes.

Independent study helps the student move from being teacher directed to learner directed. With teacher support and coaching the student learns how to decide on a focus, develop a plan of action and follow it through, and monitor the learning process. The student takes part in developing criteria for evaluation and works with the teacher as a partner.

At the senior high level, independent study credits offer students the option to design a course to meet their learning needs. (See Appendix I, *Independent Study Credits: Interim Policy Guidelines*.)

Learning Centres

Learning centres are physical "stations" where students engage in activities designed to extend their understanding and thinking. Learning centres are designed to provide a range of opportunities for creative expression and production through the investigation of particular topics and issues. While the centres may not be directly related to curricular outcomes, they introduce the students to new possibilities for study. Learning centres are appropriate at any grade level. For the teacher, learning centres provide a way to work with small groups while the rest of the class is engaged in other assignments or centre work (Armstrong 1994).

Weekend and Summer Programming

Appropriate programming must begin in school. However, a weekend or summer program may extend or complement the school's program. Such programs enable gifted youth to engage in in-depth study of interests and talents. (See Appendix D, *Sample of a Weekend Program*.)

Universities, colleges, art galleries, and theatres, as well as cultural, recreational and sport groups offer a wide variety of summer programs to challenge children and enhance learning opportunities. Examples of such opportunities include the Super Nova Camp (DalTech), Mini University Camps (Dalhousie, St. Mary's), Shad Valley Program (Acadia), Nova Scotia Gymnastics Association Camps, Young Neptune Summer Camps,

Classroom Resources

*Curriculum Compacting
The Complete Guide to
Modifying the Regular
Curriculum for High
Ability Students*
(Reis, Burns and Renzulli 1992)

*It's About Time:
Inservice Strategies for
Curriculum Compacting*
(Starko 1986)

*Teaching Gifted Kids in
the Regular Classroom*
(Winebrenner 1992)

and Summer Music Camps (Acadia, Mount Allison). An annual listing of summer programming opportunities is published by the Division of Student Services, Department of Education and Culture. To access this information please contact the guidance counsellor in your local school or the Division of Student Services, Nova Scotia Department of Education and Culture.

Curricular Models⁶

Learning through broad-based themes can be used to organize outcomes across curricular areas. A theme can span and integrate several disciplines and give rise to the study of many topics and issues. The content of the curriculum, the thinking and research skills used, and the products of the investigation are taken into consideration in the development of the theme and related systems. For example, teachers Sharon Frieson and Pat Clifford (Calgary, Alberta) used the theme "structures" with a multi-grade class. Throughout the year, all lessons were woven around this theme. Students were presented with two questions: What holds things together? What causes things to fall apart? Everything the students studied was viewed through the lens of these two interrelated questions. For example, the questions were used to study friendships, families, communities, countries, and economies. The same questions were used to examine plants, animals, and ecological systems. Students explored patterns in math and studied structures in literature. As part of a study of robotics, all students had an opportunity to experiment with building structures. Although the two teachers utilized intended learning outcomes for the year, they did not decide on the precise learning resources they would use. Instead, content emerged from the questions, interests, and concerns of the students as they related to the topic of study. These led to a variety of independent and group investigations. A final, important component of the program was the expectation that students would demonstrate the outcomes of their learning to parents and the community.⁷

Learning through cases. In case study teaching, students are presented with a realistic scenario that is woven around a dilemma. Students read the case and then work together in study groups to discuss questions about the case. After they have formulated some ideas about the issues, the teacher facilitates a class discussion. Through carefully designed questions, the teacher helps clarify and extend the thinking of students by drawing out what they know in a non-judgmental way. Using brainstorming techniques is helpful here. (Appendix J, *Brainstorming Techniques; Educational Problem-Solving Process*.) Students are encouraged to question aspects of the case they may not have considered. Often students find that, as a result of the class discussion, there are other things they will need to know before they can reach conclusions or make decisions about the issues presented in the case. Activities are then planned to explore these issues.

Learning without thought
is labour lost; thought
without learning is
perilous.

(Confucius)

Classroom Resources

*Individualized Teaching of
Gifted Children in Regular
Classrooms*
(Feldhusen 1986)

*Serious Players in the
Primary Classroom:
Empowering Children
through Active
Learning Experiences*
(Wassermann 1990)

*Teaching Gifted Kids in
the Regular Classroom*
(Winebrenner 1992)

Cases require the student to think critically and make sound decisions. To make an informed decision the student needs to understand the facts of the situation, study it from different points of view, and, ultimately, think about the consequences of his/her opinions and decisions. Wassermann (1993, 1994) provides numerous examples of cases in her presentation of this methodology.

Learning through problem solving. Enhancing the curriculum through the study of problems is related to case study teaching. Both begin with a scenario that presents a multifaceted problem. In problem solving not only do students critically analyse the problem from different points of view. Students decide upon a solution, develop a plan of action for its implementation, and, in some instances, carry out the plan of action (Treffinger, Isaksen, and Dorval 1994).

School and community problems, environmental issues, political issues and global issues are sources of real problems to study. For teachers new to this process, the *Future Problem Solving Program* is a way to get started. Each year the *Future Problem Solving Program* presents problems for students to address such as hazardous waste disposal, overpopulation, and shrinking rainforests. The topics are written as scenarios taking place in the future. Students must look at the problem from many points of view, decide on the critical sub-problems, choose one to work on, and formulate a plan of action for dealing with it. Curriculum resources are provided with this program.

For inventive students interested in technology or drama, the *Odyssey of the Mind Program* presents challenging problems for students to solve. Problems include developing structures that hold up under pressure, designing vehicles with limited sources of power, and developing a dramatization that depicts a transformation. Curriculum resources are available for science, math, social studies, and English.

Process

Educators agree that one of the goals of teaching students should be to develop thinking skills to the highest level; that is, those skills which reflect the dynamic, interactive relationship between the learner and the material, such as inquiry, problem solving, analysis, and synthesis. Glaser (1984) argues that not only can one not teach thinking skills in isolation from a knowledge base, but neither can a knowledge base be developed without an active, thoughtful engagement with the content.

Recent research on teaching and learning is helpful in the conceptualization of individual programming for students with gifts and talents. Specifically, it is important to consider both content (what the student learns) and process (the ways in which a student learns). Many educators believe that it is important to teach these two aspects of the instructional program as an integrated whole. Others believe that thinking processes are best learned

within the context of specific content, such as while learning about a topic or issue within a course of study. Further, processes learned in isolation of classroom activities are less likely to be transferred to authentic applications. If content and process are learned together, then students are better able to transfer what they have learned to other contexts, including real-life situations (VanTassel-Baska 1994).

Several authors have provided useful models for consideration. For example, while Edward deBono has been one of the proponents of teaching thinking skills separately and then embedding them in the content, his CORT program for students at the junior or high school level introduces 10 different thinking skills at each of five levels. As well, Tyler's *Just Think* (1982) and *Stretch Think* (1984) materials introduce CORT thinking skills to primary students. Ultimately, the goal is that students use these skills for deeper exploration of content. The thinking processes which are presented in this section include the following:

- thinking creatively
- thinking critically
- solving problems
- conducting research

Thinking Creatively

The processes of fluency, flexibility, originality, and elaboration are associated with the development of creative thinking skills and strategies. These processes need to be incorporated in the development and implementation of programming options.

Fluency is the ability to generate many ideas. Bechtol and Sorenson (1993) define fluency as "thinking quickly and in quantity, generating a large number of ideas or possibilities, including relevant responses." Students learning this skill are required to tell what they know, to think of ideas for writing or speaking, and to think of ways to solve a problem. Question stems to promote fluency include the following:

- In what ways ... (e.g., *In what ways might we solve the recess problem?*)
- List ... (e.g., *List different forms of power.*)
- Brainstorm ... (e.g., *Brainstorm possible consequences of a global economy.*)

The principles of brainstorming are as follows:

- accept all ideas
- defer judgment
- record all responses
- encourage the elaboration, extension, and modification of the ideas of peers
- encourage the generation of as many ideas as possible

In today's world creativity is not just a nice thing to have. It is a grave necessity.

(Edgar Dale)

Classroom Resources

Odyssey of the Mind,
CM Association, Inc., P.O.
Box 547, Glassboro, NJ
08028

*Creative Problem Solving:
An Introduction*
(Treffinger, Isaksen and Dorval
1994)

*Future Problem Solving
Program*, W. Huron St.
Suite 140-B, Ann Arbor,
48103-4203

- provide an open, secure classroom environment (see Appendix J, *Brainstorming Techniques; Educational Problems-Solving Process*.)

Fluency may also lead to "selective comparison" (Davidson and Sternberg 1984) where one is able to relate new information to what is already known and to combine seemingly unrelated ideas in unique ways. Such synthesis is one aspect of original thinking, which is discussed below.

It takes courage to be creative. Just as soon as you have a new idea, you are a minority of one.

(Paul Torrance)

Flexibility requires generating a wide range of ideas that are the result of an alternative way of viewing a familiar concept or process. The question stem "How many different ways ..." encourages student flexibility. For example, "How many different ways can you find to measure the length of a room?" or, "List many different ways to produce a book review." Students categorize their ideas to examine how diverse their thinking actually is. If, for instance, in discussing "the effects of unemployment," students focus only on economic effects, then they need to consider other areas such as emotional, social, and political effects.

Originality refers to unique or unusual responses. Original responses usually occur at the end of an idea-finding activity, after the more obvious ideas have been produced.

Question stems include the following:

- What is the most unusual idea ... way ... ? (e.g., *What is the most unusual way to market our product?*)
- What if ... ? (e.g., *What if we had no air travel?*)

The real questions are the ones that obtrude upon your consciousness whether you like it or not, the ones that make your mind start vibrating like a jackhammer, the ones that you 'come' to terms with only to discover that they are still there. The real questions refuse to be placated.

(Ingrid Bengis)

Elaboration requires adding ideas, providing details, extending thinking, or bringing an abstract concept to life. "What else ... ?" is a question stem leading to inquiries like "What else do you see?" followed by a probe, "Tell me more." The students' own evaluation of their ideas is part of this process. It is through this evaluative process that students begin to consider the criteria which form the basis for their decision-making process.

When students use creative thinking skills and strategies to generate ideas, it is important to establish guidelines to keep the process moving and to create a safe environment for risk taking. One strategy that teachers might use to promote and enhance creative thinking is the SCAMPER technique. The SCAMPER technique (Eberle 1987) helps students move from one idea to another. When students use this strategy, they are better able to make new connections or extend their ideas. Students think about a topic of concern and ask: "To create a unique solution what might I ..."

Substitute?	Who else? what else? what other place, routine, or practice?
Combine?	Bring together, unite
Adapt?	Adjust, to suit a condition or purpose

Modify?	Alter, to change the form or quality
Magnify?	Enlarge, to make greater in form, quality, or intensity
Minimize?	Make smaller, lighter, slower, less frequent
Put to other uses?	New ways to use
Eliminate?	Remove, omit, or get rid of a quality, part, or whole. What should be removed or simplified?
Re-arrange?	Change order or adjust, different plan, layout or scheme
Reverse?	Place opposite or contrary, to turn it around, backwards, upside down, inside out

Thinking Critically

Critical thinking is the capacity to see relationships methodically. Learners can build this capacity within the context of the curriculum and in everyday life in their interactions with the world and with other people.

Through critical thinking students recognize relationships among the various issues they study across the curriculum, determine their own position on those issues, and distinguish their positions from those of their classmates and teacher. Learning experiences across the curriculum can assist students in developing habits of mind and attitudes that foster critical thinking. These habits of mind and attitudes include the following:

- being accurate and seeking accuracy—seeking precision
- being clear and seeking clarity
- seeking not only factual information but also an understanding of why things are as they are
- seeking and using good reasons for deciding what to believe or do
- using credible sources
- taking into account the total situation
- dealing in an orderly manner with parts of a complex whole
- maintaining/sustaining a focus—keeping their thinking relevant to the main point, keeping in mind the original or most basic concern
- evaluating statements (what they and others believe) and actions (what they and others do)
- being open-minded to others' points of view—seriously considering points of view other than their own, reasoning from starting points with which they disagree without letting the disagreement interfere with their reasoning, and withholding judgment when the evidence and reasons are insufficient
- restraining impulsiveness—not jumping to conclusions but basing action and belief on sound reasoning

- seeking alternatives
- taking a position when the information warrants it and changing a position when the evidence and reasons are sufficient for doing so
- being sensitive to the feelings, level of knowledge, and degree of sophistication of others

Thinking critically involves a number of processes. These include seeking clarity, establishing and making inferences, defining terms, and judging definitions.

Clarity: providing a focus for the critical thinking process, analysing lines of reasoning, seeking and providing clarification

- focussing on a question
 - identifying or formulating a question
 - identifying or formulating criteria for judging possible answers
- interpreting the meaning of terms and formulating clear definitions
 - defining terms
 - identifying and handling equivocation
 - identifying unstated and needed assumptions
- analysing arguments
 - identifying conclusions
 - identifying stated reasons
 - identifying unstated reasons
 - seeing similarities and differences
 - identifying and handling irrelevance
 - seeing the structure of an argument
 - summarizing
- asking and answering questions of clarification and challenge, for example,
 - Why?
 - What is your main point?
 - What do you mean by ... ?
 - What would be an example?
 - What would not be an example, but be close to one?
 - How does that case, which you seem to be offering as a counter-example, apply to this situation?
 - What difference does it make?
 - What are the facts?
 - Is this what you're saying, " ... "?

- Would you say more about that?

Establishing a Sound Basis for Inference: judging the credibility of sources of information, and making and judging the credibility of observations. This may include examination of the following considerations:

- expertise
- conflict of interest
- agreement with other sources
- reputation
- use of established procedures
- ability to give reasons

Inference: making and judging deductions, inductions, and value judgements.

This includes

- generalizing
- explaining the evidence, checking consistency with known facts, eliminating alternative conclusions
- effectively investigating, designing experiments, including planning that controls variables, seeking evidence and counterevidence, seeking other possible conclusions
- examining relevance of background facts
- identifying consequences of proposed action
- considering and weighing alternatives

Solving Problems

Many strategies and approaches can be used in problem solving. The creative problem-solving process is a strategy that can be used to examine real problems and issues. There are six stages to the model. Each stage requires a divergent phase (D) in which many ideas are needed and a convergent stage (C) in which decisions are made about the best ideas to move forward.

The process, initially developed by Parnes and Osborne, has been modified over the years so that it is more flexible. The following is from *Creative Problem Solving: An Introduction* (Treffinger, Isaksen, and Dorval 1994, 19) and illustrates the Problem Solving Process. All the stages do not need to be used with each problem. For example, when students are studying an environmental issue such as shrinking rainforests, gathering data and listing problems associated with the topic can be meaningful activities on their own. Later, students may choose one of the key problems to solve. While they may ultimately decide upon the best solution, they may or may not develop and implement a plan of action.

Problems cannot be solved at the same level of consciousness that created them!

(Albert Einstein)

Among the critical skills required of the Canadian workforce is the ability to think critically and act logically to evaluate situations, solve problems, and make decisions.

(The Conference Board of Canada 1998)

If I were mayor ... When a flyer announcing the "If I Were Mayor" contest arrived, Grade 2 teacher Louis Baines saw it as an opportunity to use the idea as a problem solving exercise. She presented the following scenario (mess) to her students:

You have just won the North Cowichan Mayoral election. You are filled with pride that people of this community chose you to be their mayor. You have great plans to improve the city. The class discussed the role of the mayor, what makes a good leader and what pressing problems face their town. Each student had a different set of ideas. The following are excerpts from Ian's written responses. Note that first he lists all of his ideas, then selects the most important idea(s), marks it with an asterisk and then moves the most important idea forward.

Data Finding - Some things a mayor is concerned about ... Electricity, power lines, taxes, parks, population growth, Pollution ...

Problem Finding - In what ways might I ... Lower the taxes, Stop cutting down trees, Stop pollution, Stop littering, Protect fish, beaches, and sea and wildlife.

Idea Finding - Ian decided protecting the local habitat was the most important problem. His ideas included: 1. Instead of making the pollution go up into the air—make it go down into the center of the earth. 2. Do your part. 3. Build a BIG wildlife preserve.

Solution Finding - Ian decided one of the criteria necessary to assess his idea would be whether or not the issue is important to the citizens of his community. He evaluated his solution by looking at its advantages, disadvantages and unique possibilities. Advantages included: animals can be seen, the Rod and Gun Club would help, and the Fish and Game Club would help. Limitations were: Loggers and the government might not agree. A unique potential was that he could fence the animals for people to see.

Acceptance Finding - First item on Ian's plan of action was to contact a realtor and buy lots of land. In one month he planned to hire a surveyor to map out the property. In three months he would contact volunteers to start working.

(Ministry of Education 1995)

Divergent Phase		Convergent Stage	
Understanding the Problem Component			
Mess Finding			
• seeking opportunities for problem solving		• establishing a broad, general goal for problem solving	
Data Finding			
• examining many details, looking at the mess from many viewpoints		• determining the most important data to guide problem development	
Problem Finding			
• considering many possible problem statements		• constructing or selecting a specific problem statement (stating the challenge)	
Generating Ideas Component			
Idea Finding			
• producing many, varied and unusual ideas		• identifying promising possibilities—alternatives or options having interesting potentials	
Planning for Action Component			
Solution Finding			
• developing criteria for analysing and refining promising possibilities		• choosing criteria and applying them to select, strengthen and support promising solutions	
Acceptance Finding			
• considering possible sources of assistance/resistance and possible actions for implementation		• formulating a specific plan of action	

A useful resource to assist teachers in assessing student problem solving is Treffinger, Sortore, and Tallman (1992) as it outlines tools for observing, assessing, and evaluating student understanding and use of the creative problem solving process.

Conducting Research

Questioning and Inquiry Skills

Critical thinking is an active process not only of constructing questions and of making connections from the known to the unknown, but also of examining one's own thinking process. Questioning plays a key role in generating and developing ideas and in extending understanding, and as Rehner, *Practical Strategies For Critical Thinking*, (1994) states, "An effective learner is also an effective questioner." However, learning to question involves learning a variety of questioning strategies and being able to choose an appropriate strategy given a particular situation. In this work, Rehner (1994) suggests three specific strategies that help students to develop questioning skills:

1. Making broad questions more specific (Learning to break down a broad question into its relevant and more specific parts)

Example: The broad question What does the story mean? can be broken down into questions such as What happens in the story? Who are the chief characters? What are the key events or turning points? Are there key details or descriptions that the author emphasizes? What are the key relationships and conflicts in the story? How does the story relate to the course I'm taking or to other stories I've read? (Rehner 1994, 101)

2. Generating questions when you fear you have none

When students are attempting to generate questions, Rehner (1994) suggests testing "several different types of sequence questions that are general enough to begin this process but precise enough to be answerable." For instance, examining an issue from past, present, and future perspectives can be useful. Although students might know very little about the specific issue under investigation, questions might be generated concerning when the term or concept first began to be used, what its current meaning is, and how this meaning might influence future definitions. Such an evolutionary focus might yield information that can be used to generate more informed questions.

Another sequence suggested by Rehner (1994) is to encourage students to ask questions about the order in which the events happened. By organizing the material, philosophical and provocative questions such as, "Does reality determine imagination, or does imagination determine reality?" might emerge. A third sequence of questions that Rehner suggests is to encourage students to examine a topic, usually a controversial one, using the following sequence of words: "must, which suggests urgency; should, which is philosophical; can't, which highlights what is impossible to do; and shouldn't, which points to what is undesirable or ill-advised, ... [in order to examine] it from within certain boundaries." Barnes (1992) in Rehner (1994, 104)

Classroom Resources

Research Comes Alive:
Guidebook for Conducting
Original Research with
Middle and High School
Students
(Schack and Starko 1998)

*Looking for Data in All the
Right Places: A Guide for
Conducting Original
Research with Young
Investigators*
(Schack and Starko 1998)

Finally, questions that invite both positive and negative comparisons may be useful for students to ask. These questions can help students link their own lived experiences to the new information which they are trying to understand; for example, "How is a nation's debt like my own debt?" and "How is it not like my own debt?" (Rehner 1994, 104).

3. Using a checklist of questions to minimize errors in thinking

Rehner (1994) suggests that the metacognitive approach of asking questions of oneself results in a self-awareness of one's thinking patterns and is useful in the evaluation of the ideas themselves. "Two very common errors in thinking," claims Rehner, "are overlooking a crucial variable or piece of information and assuming that any answers we have worked out must be right". To lessen the effects of these errors, students can check their thinking periodically by asking themselves: "Is there more to this problem, issue, or situation than I am currently seeing?" and "Have I fairly considered other views or tried to generate alternatives?" (Rehner 1994, 105).

An Inquiry-Based Model

An inquiry-based model of curriculum as described by Wells and Chang-Wells (1992) enables learners to build upon their prior knowledge and experience by engaging in activities which they see as meaningful. Because the model encourages the use of existing understanding and the pursuit of answers to learners' authentic questions, it is responsive to the needs of individual students.

Wells and Chang-Wells (1992, 117) believe that "the construction of knowledge requires goal-directed engagement with new information, through direct experience and exposition, through discussion and deliberation with others, and through communing with self in writing and reading."

This inquiry-centred model is organized by broad thematic units of study. It may start with a whole-class activity in which students brainstorm what they already know and what questions they might wish to investigate. Within each of these units, individual students or small groups then make decisions about the specific topics for investigation based on their interests and on available resources.

Once the topics for study have been chosen, students are guided through three major stages of the inquiry process: research and inquire; compose and construct; present outcomes.

Through researching and inquiring, students collect information by reading, observing, experimenting, interviewing, and other such fact-finding activities. The information gathered must then be assembled, organized, interpreted, evaluated, and understood before it can be presented to others. Although each of these stages may be done sequentially, they may also interact in a cyclical fashion as the students gain an

understanding of the topic and work towards their presentation of what has been learned. Each of these stages of researching and inquiring, composing and constructing, and presenting outcomes involves the essential processes of goal setting, planning, doing, and reviewing. Reviewing may lead to revisions, which also involve goal setting, planning, and doing. As each stage also involves hypothesis testing and problem solving, students have an opportunity to use existing skills and to develop new ones.

This inquiry-based model gives students an opportunity not only for the development and practice of skills and processes, but also for affective engagement. It is this engagement that motivates students to participate in these authentic investigations.

Interviewing

To support independent investigations students need to know where to obtain information, how to record ideas, and how to organize and report the outcomes of their work. In addition to researching using print materials and technology, interviewing and developing surveys should be considered.

Interview preparation

- Decide on the purpose of the interview and the type of information needed.
- Brainstorm possible questions and group together those which appear to be asking for the same information.
- Select the specific questions predicted to elicit the data needed for the research.
- Develop an order for presenting the questions.
- Decide how to analyse and evaluate the data.
- Brainstorm the steps in the procedure to gain and to arrange an interview.
- Select the important items and put them in a logical sequence.

Role-play the interview

Interviewing can be high risk for students. If they are well prepared and have had opportunities to rehearse the interview in advance and get feedback from their classmates, they will feel more secure. Working in teams for face to face interviews—with one person asking questions and another recording—helps to relieve some of the pressure associated with this process.

Surveying

Surveying follows the same process as interviewing with these differences:

- Write the list of survey questions.
- Decide how to obtain responses. Yes or no responses? multiple choice? open ended?

- Select questions carefully.
- Field test the questions by trying them out on several volunteers.
- Rewrite questions until they are clear and provide data that can be sorted and analysed.

Products

Products refer to the things students develop to show what they know. Developing products from investigations provides students with an opportunity to use their learning style strengths and personal preferences to represent their knowledge.

Examples of products that draw upon a variety of styles or intelligences include: models, diagrams, letters, videos, debates, displays, dramatizations, multimedia presentations, concept maps, stories, sculptures, paintings, songs, scripts, classification systems, and advertisements. Armstrong (1994) outlines products in relation to multiple intelligences and provides formats for organization and planning in this area.

Students take more care in developing their products when they are intended for audiences beyond the classroom. Products for real audiences include the following:

- letters to the editor and articles in the local newspaper
- student works displayed on a web page or published in children's magazines
- displays in public places—malls, banks, shop windows, parks, dentist/doctors' offices
- presentations to appropriate local groups. For example: city council, historical society, naturalists' society
- artistic performances for the public, for example senior citizens
- story telling in a library or bookstore, creation of oral history tapes for a library
- invention fairs
- televised student panel discussion of a community problem
- student business plans reviewed by business community
- dramatization of an issue for the community

Learning Environments

An accepting environment that provides a safe and supportive atmosphere is important for all students. An environment that promotes group planning and problem solving can help students move from a teacher-directed atmosphere to one in which students accept responsibility for their own learning.

Classroom Resources

Multiple Intelligences in the Classroom
(Armstrong 1994)

Seven Ways of Teaching
(Lazear 1991)

Grouping for Instruction

Interacting with students who have similar learning needs and interests is important for students with gifts and talents. Small group activities provide opportunities for students with gifts and talents to collaborate. Groupings can be arranged in a variety of configurations. Teachers may form groups to work on specific curricular outcomes, to provide students interested in a specific topic an opportunity to work together, or to create an environment in which students can interact with peers who have similar learning needs.

Groups should be flexible in composition and duration. Group membership may be determined by the teacher or by students. Cross grade level grouping is useful for investigation of topics or themes and can extend learning opportunities. It can take place in single or multiple subject areas using a variety of grouping techniques. Clustering refers to grouping 2–5 students with gifts and talents in a grade level/subject area classroom. Through clustering within the classroom, students can work with differentiated curriculum on a continuous basis. In situations where there are sufficient numbers of students, part-time and/or full-time classes give students the opportunity to come together to learn and explore topics at a pace and complexity commensurate with their abilities.

Mentoring

In meeting the needs of students, classroom teachers are encouraged to draw on the resources available in the wider educational community and the business community. Mentoring can be used to assist students in meeting their learning needs. Professionals and experts in a variety of fields can strengthen student interests and provide positive and exciting role models. Teachers, counsellors, librarians, other students, parents, and community resource people can become mentors. The relationship with a mentor can help students move to a new level of understanding. It is an opportunity for students to learn how experts in their field of interest go about their work. Internships can help the students experience the reality of work in a specific field. Mentors can provide stimulation and support beyond the classroom. Their encouragement and interest in students' pursuits also provide additional social and emotional support.

Schools can turn to their respective communities to partner in setting up mentorships, apprenticeships, and internships for students (See Appendix C-1, *Community Resources Survey*.) In addition, Internet provides access to a broad base of knowledge and expertise. Co-operative efforts among local universities, business and industry can forge unique opportunities. In communities where there is teacher training, pre-service teachers may be assigned as mentors. These teachers can obtain invaluable first-hand experience in learning how to plan and implement enrichment projects for students with gifts and talents (Gray 1983).

Classroom Resources

Cluster Grouping Fact Sheet: How to Provide Full-time Services for Gifted Students on Reasonable Budgets (Winebrennar and Devlin 1994)

Evaluation

There are many purposes for evaluation. Evaluation is a means of assessing the progress of student learning and of identifying areas for further learning and teaching. Evaluation can be an avenue for communication between teacher and students. It can be an avenue for recognizing achievements, for offering encouragement, and for developing understanding of how learning processes affect learning outcomes.

While it is important to encourage students to strive for accomplishment which may be reflected in marks or grades, it is also important to encourage students' enthusiasm for further learning and understanding of how future learning tasks might be approached.

(Clarke Wideman and Eadie 1990)

The purpose for evaluation and the outcomes being evaluated must be central to the evaluation design. Student evaluation should not be narrowly defined as "testing." Rather it is the use of all available methods of obtaining information about what students know and are able to demonstrate. There is a role for both formal and informal evaluation in determining to what extent students are achieving learning outcomes. This means that evaluation will not only occur in written form, but also through observation and demonstration.

Effective evaluation

- connects learning outcomes and evaluation
- relates the learning process to the methods of evaluation
- uses a variety of evaluation approaches that consider student strengths and needs
- makes use of both formal and informal evaluation
- is planned for the school year and shared with students and parents
- maintains accurate records that are meaningful to different audiences
- provides practical information
 - is appropriate for both small groups and individual students

Evaluation of student learning reflects the content (what the student learns,) the process (how the student learns,) and products (how the student shows what he/she knows). Please see Options in Programing (p. 30) for more ideas on how to extend learning for all students.

Attention needs to be given to Gardner's work on multiple intelligences (MI) and to the diverse cultural backgrounds of students when deciding on evaluation approaches.

Classroom Resources

*How to Mentor in the
Midst of Change*
(Sullivan 1992)

*Mentor Relationships:
How They Aid Creative
Achievement, Endure,
Change and Die*
(Torrance 1984)

*Mentoring: An Annotated
Bibliography (1982-1992)*
(Noller and Frey 1994)

*Developing a Mentor
Program*
(Haeger and Feldhusen 1989)

"Ultimately, MI theory provides an assessment framework within which students can have their rich and complex lives acknowledged, celebrated, and nurtured. Because MI assessment and MI instruction represent flip sides of the same coin, MI approaches to assessment are not likely to take more time to implement as long as they are seen as an integral part of the instructional process. As such, assessment experiences and instructional experiences should begin to appear virtually indistinguishable. Moreover, students engaged in this process should begin to regard the assessment experience not as a gruesome "judgement day" but rather as another opportunity to learn" (Armstrong 1994, 131).

Classroom Resources

Making the Grade
(Cornfield 1987)

Together We Learn
(Clarke 1990)

*Assessing Student
Performance*
(Wiggins 1993)

Approaches to evaluation design and techniques are varied and numerous. Portfolios, conferences, peer evaluation, self evaluation, and individual contracts are particularly useful in the evaluation of student learning. Information on each of these techniques as well as a variety of approaches to assessment design can be found under Classroom Resources in this section.

Professional Development

Everyone needs opportunities for self-renewal, but those responsible for developing other human beings need them most of all. Thinking deeply about what we are doing leads us to ask better questions, break out of fruitless routines, make unexpected connections, and experiment with fresh ideas.

(Brandt 1991)

Professional Development

Teachers need and appreciate ideas, strategies, resources, and other forms of support in working with a diverse range of students. Some of this support emerges naturally within the school as teachers work collegially and share techniques and materials. Other contributions come from each teacher's reading, research, and experience.

Nevertheless, more formal professional development opportunities are valuable. Discussions with peers teaching the same subject or grade level in other schools facilitate learning and sharing. Workshops, mini-courses, school-based in-services, institutes, and university courses help teachers to further address their needs and interests regarding programming for students with gifts and talents.

The following areas are suggested as possible topics for professional development for teachers and principals in meeting diverse learning needs.

Teachers

- identifying diverse learning needs in the classroom-observational strategies, information-gathering techniques, portfolio assessment
- understanding the intellectual, social/emotional needs of students
- involving parents in active and meaningful ways
- extending existing classroom teaching techniques and managing a classroom in which there is a wide range of learners
- differentiating instruction, inclusive teaching strategies
- developing individual program plans for students with gifts and talents
- supporting students in the classroom through reflective opportunities
- utilizing community resources
- understanding and implementing multiple intelligences theory and practice in the classroom
- grouping techniques
- questioning strategies

Principals

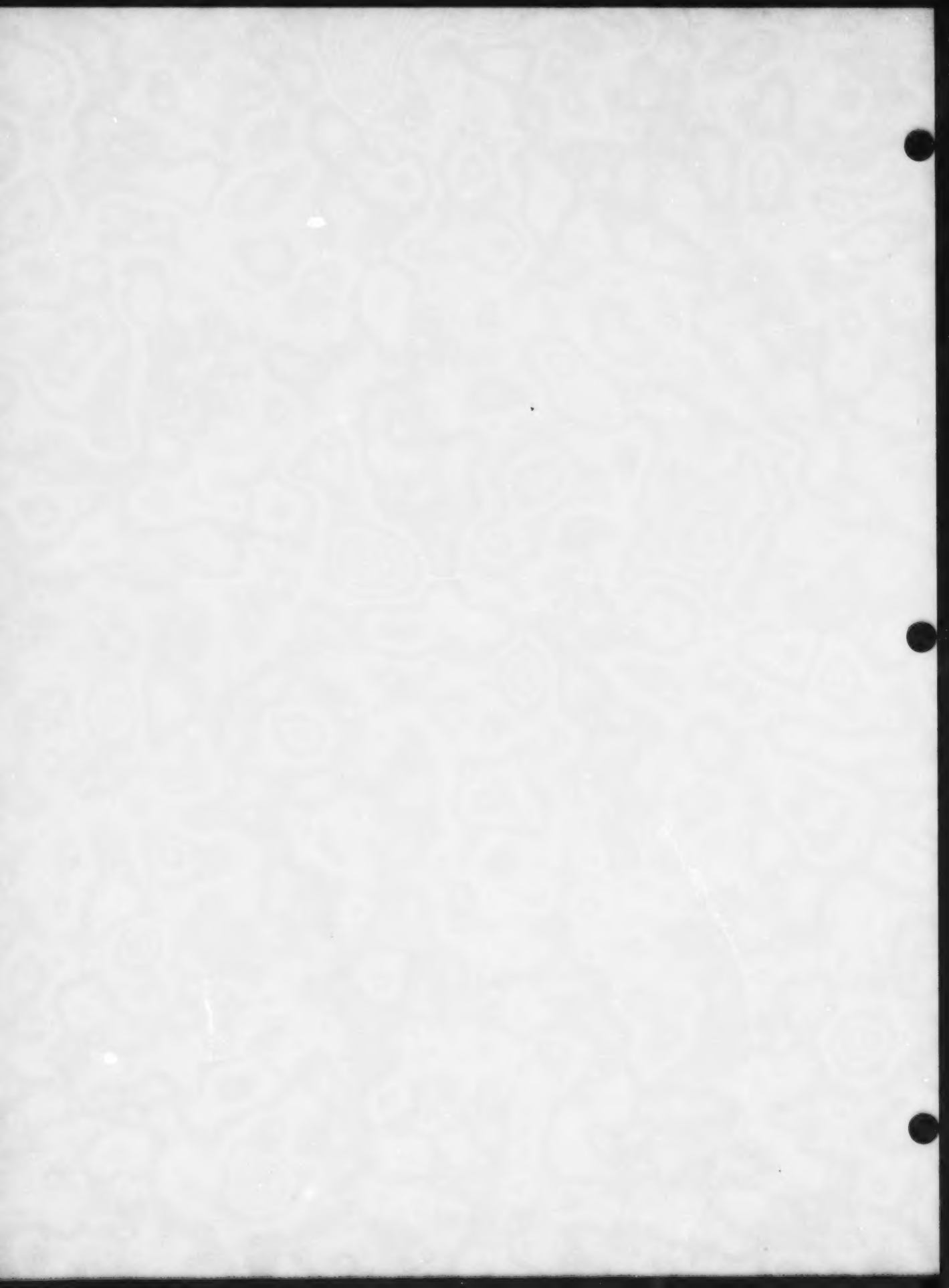
- formulating the school's philosophy, goals, and objectives related to diverse learners
- communicating with the community
- providing professional development opportunities for teaching staff, school counsellors, and school psychologists
- supporting teachers' needs
- developing and implementing a plan for school-wide enrichment
- establishing program planning teams
- establishing networks among schools

Teachers need to have planning time to come together to share ideas, innovative teaching strategies, resources, etc. School boards may arrange to have teachers from similar grade levels or subject areas meet to develop learning extensions to the curriculum. Another venue through which ideas may be shared among colleagues is a district-wide newsletter or a home page on the Internet. These provide teachers with a format to share activities, resources, and innovative teaching strategies. Summer institutes and seminars allow for focussed and intensive professional development as well as time to reflect and share among peers.

Appendices

The way in which my own life touches those of so many others, those I know and thousands of those I don't, has strengthened my belief that each human has his or her unique place in the ocean of existence.

(Jane Goodall)



Appendix A

Developing Inclusive Schools

Process for School-Based Meetings

B. Hoskins, Ph.D.

1. Facilitator

- Welcomes participants.
- Asks participants to introduce themselves.
- Thanks participants and states purpose of the meeting.
Purpose: To engage in a planning process to support _____ (student) and _____ (teacher) in experiencing success.
- Explains process: In the first 10 minutes of the meeting we will:
 - Ask _____ (referring teacher) to briefly explain his/her concerns, and identify 1 to 3 key goals/things he/she would like to see change for _____ (student).
 - Decide whether we can all support these goals or outcomes.
 - Identify situations in which _____ (student) experiences success and situations in which he/she seems to have difficulty.
 - See if there are patterns that may account for _____ 's (student) difficulties or successes in these situations.
- After that discussion, we will:
 - Engage in a 5-minute brainstorming process in order to explore strategies or ways to support _____ (student) in accomplishing the desired outcomes.
 - Lastly, we will review our ideas and have the _____ (teacher) (_____ (student) and parent(s), if present), select the suggestions for support that he/she feels will be most useful at this time. We will select those to develop our action plan.

2. Teacher states current concerns and identifies key outcomes. Facilitator may use the question: "What are the key things that you would like to see him/her be able to do so that he/she would be more successful in your class?"
3. Facilitator asks participants to identify situations in which the student experiences success (strengths), or difficulty. The facilitator then asks the group to identify patterns that keep (student) from achieving or enable him/her to achieve desired outcome. Allot 10 minutes for preceding steps 1, 2, and 3.
4. The facilitator then presents directions for the brainstorm process.

- Review the purpose and rules of brainstorming.
 - Purpose: To generate as many ideas as possible in a short period of time.
 - Rules: (1) Any idea is a good idea, no "yes, buts;" (2) No one should take up the entire time with one idea; (3) Hold discussion until after the initial brainstorming.
 - Identify a recorder to write ideas on a flip chart for all participants to see.
 - Ask participants to direct their ideas to the recorder, not the teacher. The teacher will not be expected to implement all of these ideas.
 - Point out that at the end of the brainstorming exercise the teacher will identify which ones he/she would find most useful.
 - Review the desired outcomes, check the time and invite the group to begin.
5. After 5 minutes, the facilitator stops the process and thanks the participants. Ask the teacher (student and parents(s)) to identify strategies that he/she find to be most supportive. These should be circled. Others may be noted to be ones that have already been tried or ones that may be feasible at another point in time. This is a time to discuss how the strategies could be implemented.
6. The facilitator then takes the strategies, identifies as most supportive and places them on an action plan, asking who could provide that support. Participants should be encouraged to lighten the load for the classroom teacher as much as possible. Times for completion for each action should be identified and an overall review date determined to follow-up.
7. Thank participants! Let them know that each participant will get a copy of the action plan.

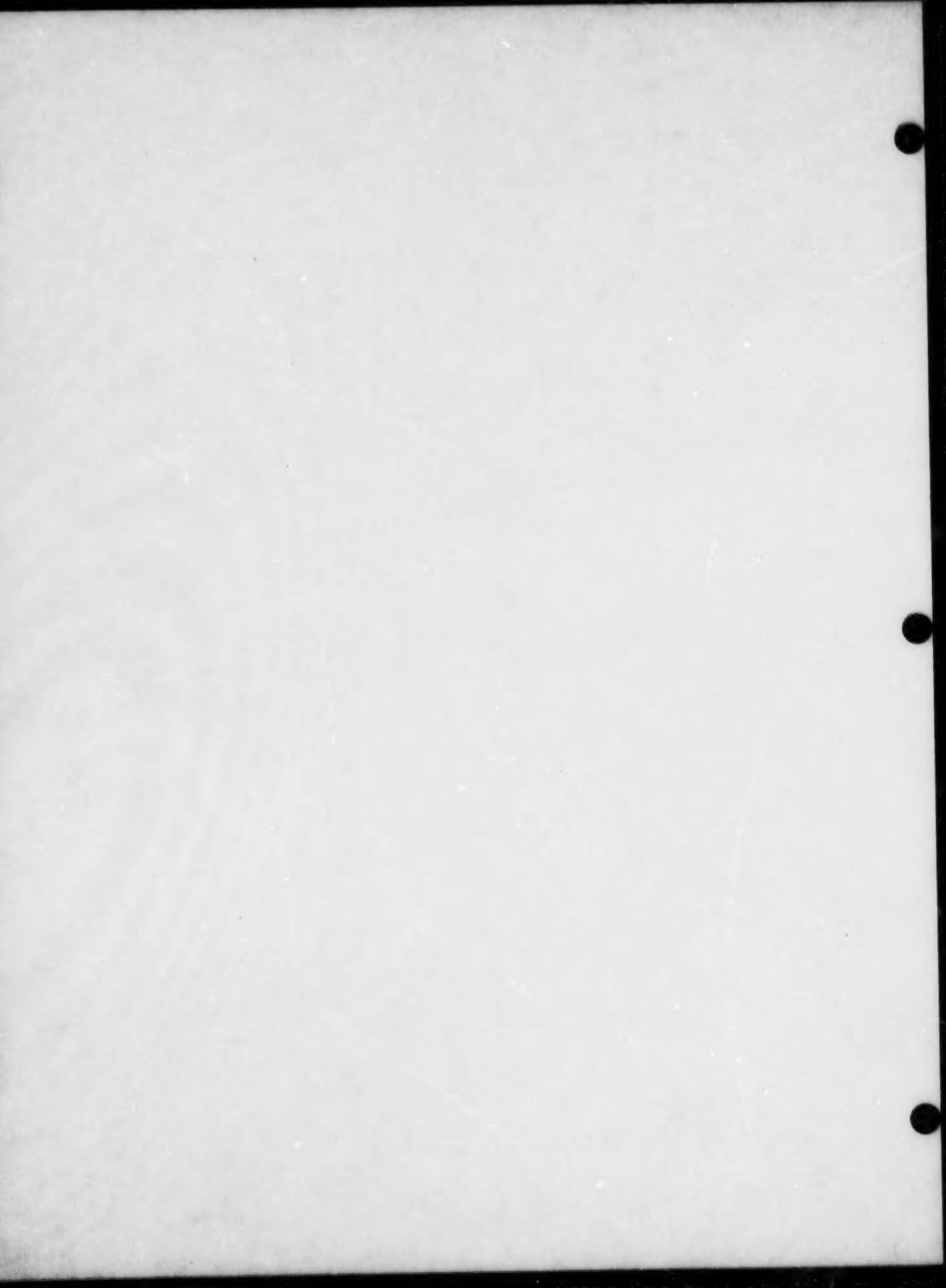
Appendix B

Action Form 3—A Planning Guide

May be used by the School Enrichment Team in planning school-based activities or by individual classroom teachers in recording classroom experiences (Renzulli 1985).

Type 1 Planning Guide

Check all that apply:									
☐ General Matrix									
☐ Grade Level									
☐ Subject Area									
Methods of Delivery									
I. Resource Persons									
Speakers									
Mini-Courses									
Demonstrations									
Artistic Performances									
Panel Discussion/Debate									
Other									
II. Media									
Films									
Filmstrips									
Slides									
Audio Tapes/Records									
Videotapes									
Television Programs									
Newspaper/Magazine Articles									
Other									
III. Other Resources									
Interest Development Centers									
Displays									
Field Trips									
Museum Programs									
Learning Centres									
Other									



Appendix C-1

Community Resources Survey

An open letter (sample) designed to invite the community to work with the school in extending learning opportunities for all students.

School-Wide Enrichment Program

Dear Parents and Community Members:

Our school is embarking on a schoolwide enrichment program in order to bring to our students a wide variety of enrichment experiences. We need your help and enthusiasm! We are asking you to share with us your expertise, experiences, interests, talents, and skills.

Through your support, our students will encounter rich and rewarding school experiences which will extend their learning beyond traditional classroom settings. Traditional classroom settings and curriculum often cannot meet the intensive interests and unique abilities of many of our students. An adult role model, either as a classroom presenter or as a mentor for a particular student, will enhance the learning environment of the school. We believe the experience will be a rewarding one for all concerned.

Please consider the following survey as **Your Invitation** to become involved in your school community. Should you require any further information, please feel free to give us a call.

Sincerely yours,

Return to:

Survey

Linkages: Community Resources Survey

Please circle any areas listed below which reflect interests, skills, and talents that you would be willing to share with our students.

Language Arts

Advertising	Game Design	Linguistics
Authors	Handwriting/Graphology	Literature/Drama
Book-making	Interviewing	Oral History
Publishing	Media Studies	Play-writing
Broadcasting	Propaganda	Poetry
Cartooning	Journalism	Polling
Communication	Newspapers	Public Speaking
Debating	Legends	Shakespeare
Etymology	Myths	Sign Language/Deaf Culture
Foreign Languages	Letter-writing	Philosophy
Conversation	Libraries	

Science

Agriculture/Farming	Environment	Optics
Alternative Medicine	Energy	Outdoor Education
Anatomy	Fish	Outer space/Aeronautics
Animals	Fossils	Phobias/Fears
Aquaculture	Forestry	Physics
Astrology/Stars	Genetics	Pollution
Astronomy	Health/Medicine	Reptiles
Biology	Human Body	Robots
Biorhythms/Chronobiology	Insects	Rocks/Minerals
Birds	Inventions	Science Olympics
Botony	Metals	Scientists
Chemistry	Microscopes	Snakes
Conservation	Natural Resources	Weather
Dinosaurs	Nature Study	Wildlife
DNA Fingerprinting	Nutrition	Women in Science
Ecology	Oceanography	
Electronics		

Social Studies

Anthropology	Ethnic Heritage	Pollution
Alcohol and Drugs	Families	Psychology
Canadian Peoples	Famous People	Public Opinion
Canadian Government	Festival/Holidays	Pyramids
Canadian History	Foreign Policy	Senior Citizens
Archaeology	Genealogy	Social Problems
Black History	Geography	Special Needs Children
Anti-racism	Maritime Studies	Urban Development
Child Abuse	Mental Illness	City Planning
Crime/Criminology	Mi'kmaq History	Women's Rights
Current Events	and Culture	World Affairs
Death/Dying	N.S. History	World Travels
Ethics	and Politics	

Mathematics

Accounting	Economics	Statistics
Algebra	Geometry	Probability
Banking	Inflation	Stock Market
Business	Metrics	Taxes
Consumerism	Money Management	Elections

Computer Technology

Computer Programming	Internet	Multi-media Production
Bulletin Boards		

Thinking/Research/Study

Brain Games	Human Relations	Preparing Audio
Chess	Imagination	Problem Solving
Creativity	Leadership Training	Research
Decision-Making	Listening Skills	Simulations
Deductive/	Logic	Visual Materials
Inductive Reasoning	Memory Skills	

Visual/Performing Arts

Acting	Clay	Musical Instruments
Animation	Clowns	Opera
Architecture	Commercial Art	Origami
Art History	Costume Design	Painting
Artists	Dramatics	Pantomime
Ballet	Drawing	Photography
Broadway	Folk art/music	Play Production
Calligraphy	Graphics	Puppetry
Cartooning	Make-up Design	Radio Show
Choreography/Dancing	Modern Dance	Television
Cinematography/	Multi-media Production	Theatre
Film-making	Movies	

Recreation

Aerobics	Community Theatre	Orienteering
Archery	Crafts	Pets
Backpacking	Gardening	Sailing
Beekeeping	Horses	Scuba Diving
Boating	House Plants	Toys
Bicycles	Kites	Treasure Hunting
Camping	Magic	Woodworking
Cars	Martial Arts	Sports
Coins/Stamps	Model Building	

Careers

Please list below any career or occupation you would be willing to share with students.

Other

Is there any other information about your career, travels, education, cultural experiences, hobbies, publications, collections, competitions, community activities, politics, research, pet projects, or special interests that you are willing to share with us?

(Adapted from *The Schoolwide Enrichment Model*, by Joseph Renzulli and Sally Reis, 1997.)

Appendix C-2

Survey Follow-Up

Thank you for responding to our Community Resources Survey.

Because you have expressed an interest in sharing some of your talents and interests with us, we would like to know which format of presentation you would find most suitable.

Please check below

- ☐ I am willing to conduct a 45-minute lecture/discussion/demonstration with groups of interested students.
- ☐ I am willing to teach a short workshop for a small group of interested students.
- ☐ I am available for a phone conference with a student who shares my interest.
- ☐ I am willing to have a private conference with a student who shares my interests.
- ☐ I am willing to have interested students(s) visit me at my place of business/home.
- ☐ I am willing to answer written correspondence from a student who shares my interests.
- ☐ I am willing to commit 10 or more hours to serve as a mentor for a student who shares my interests.
- ☐ I am willing to help serve as an evaluator of a student's project in a mutual interest area.
- ☐ I can suggest other resource people and organizations in my interest areas(s).
- ☐ I am available "on-line" (computer) for conferencing with a student who shares my interest.
- ☐ Other: _____

(Adapted from *The Schoolwide Enrichment Model*, by Joseph Renzulli and Sally Reis, 1997)

Name: _____

Home Address: _____

Postal Code: _____

Place of Business: _____

Telephone No. (Business): _____ (Home): _____

OFFICE USE ONLY:

Resource areas:

Appendix C-3

A Note to Community Volunteers

Dear

Thank you so much for returning the community resources survey. Responding to the survey allows us to put your name in our resource file that will make your topic available to teachers who have students interested in your subject area.

In order to help you with your presentation, we would like to offer some helpful suggestions.

- Let the teacher know if there is anything that can be done to prepare the class for your visit.
- Can you think of any follow-up activities in which the students might be able to engage?
- Feel free to talk to the teacher ahead of time regarding the scope of your presentation.
- If you need any equipment or materials, please let the teacher know ahead of time. Hands-on activities are great.
- Do you have something to demonstrate or show?
- Please allow time for questions.
- If students seem to be getting restless, shorten the presentation. To bring closure to the presentation, you may indicate that there is time for "one more question."

With your permission, we will contact you regarding individuals or groups of students who share your interests. Once again, thank you for your co-operation.

Sincerely yours,



Appendix D

Sample of a Weekend Program

Spring Workshops

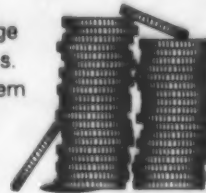
Sacred Heart School 10-12
May 25, 1991 (Saturday)

COIN COLLECTING

**Do you have an interest in old and new coins?
If so, this workshop is for you.**

Joe Burt will cover such topics as:
the history of coins, care and storage
of coins, cleaning and types of coins.
If you have coins, you may bring them
along to the workshop.

Maximum: 15 Fee: \$2.00



INTRODUCTION TO COMPUTERS

**A unique opportunity for parent and child (Grade P-2)
to discover the use of computers together.**

The leader will start at the very beginning,
so that you will both learn how to
care for and operate a computer.
Various software will be available.

Workshop leader: Don Cormier
Maximum: 8 sets Fee: \$2.00



COOK AND LOOK

Microwave Cooking for Kids-Eleanor Anderson

Nutritious foods will be prepared by the
students and they will have a chance to
sample their own cooking!
Students are asked to bring an apron.
All other materials and
utensils will be supplied.

Maximum: 12, Grades 4-6 Fee: \$4.00



CHESS CHALLENGE

**Interested in learning how to play chess?
Perhaps you want to improve your skills.
Either way, this workshop is for you.**

Dan MacNeil is the workshop leader.
All grade levels are welcome.
Chess boards and pieces will be provided.

Maximum: 10 Fee: \$2.00



Appendix E-1

Parent/Guardian Information Form—Elementary

Student's Name: _____ Grade: _____

School: _____

Language(s) Spoken by Student: _____ Date: _____

Parent's/Guardian's Signature: _____

The information you are providing is to assist in enriching your child's program in the classroom. These items include a wide range of possible characteristics. A child is not expected to be high on all of them. Some items may not have been observable.

Section A

	Low	2	3	High	Not Observable
Asks many questions, as to what, where, when, how, and why					
Solves problems in an organized manner					
Is able to work on his/her own with no supervision					
Enjoys playing imaginative roles and games					
Sees the humour in certain situations					
Is sensitive to the feelings of others					
Pursues his/her own interests seeking new information					
Is able to analyse and offer positive, constructive suggestions					
Likes to express and defend point of view					

Section B

	Low	2	3	High	Not Observable
Is determined or persistent in completing tasks					
Performs always to the best of his/her ability					
Likes to organize activities and assume leadership roles					
Is able to work independently; requires little direction					
Is persistent in opinions and often self-assertive					
Pursues questions of right and wrong; is concerned with fairness					

Section C

	Low	2	3	High	Not Observable
Is able to express him/herself in good, clear, forceful English					
Is well aware of his/her environment					
Has a good memory					
Is able to discuss a story, or analyse a movie with comprehension					
Reads many books on various topics					
Uses T.V. or other media effectively as sources of information					
Is able to deal with a difficult situation with reasoning and planning					
Has interests similar to older children and adults					
Is interested in issues such as race, religion, ecology					

1. Indicate any special interests or skills your child has. Give examples of the degree of involvement.

2. Reading interests (favourite type of books and/or titles of favourite books):

3. Favourite subjects:

4. General attitude toward school:

5. Contributions and responsibilities to family and community:

6. Favourite playtime or leisure activity:

7. Special lessons, training, or learning opportunities your child has outside of school:

8. Other information that you would like us to know that would assist us in considering your child:

Appendix E-2

Student Interest Inventory—Elementary

Student's Name: _____ Grade: _____

School: _____ Date: _____

Languages(s) Spoken: _____

1. Indicate your favourite subject area(s) in school.

2. Indicate what extra-curricular activities you participate in that are associated with your school.

3. What clubs or organizations do you belong to outside of school? (Please include private lessons you take—karate, piano, art, etc.)

4. Name your **three** favourite TV programs.

5. List your **three** favourite books and any authors whose works you enjoy.

6. List the favourite section(s) in any newspapers to which your family has subscribed.

7. List your favourite magazines.

8. What games or hobbies do you enjoy?

9. What is your favourite sport?

10. What sports do you play in and out of school?

11. List any awards or prizes you have won.

12. What types of reading do you enjoy? Check those that apply.

- | | | |
|--|--|--|
| ☐ Comics | ☐ History | ☐ Space Travel |
| ☐ Craft and Games/Puzzles | ☐ Human Interest | ☐ Sports and Sports |
| ☐ Fairy Tales | ☐ Romances | ☐ Stories |
| ☐ Historical Fiction | ☐ Science Fiction | |
| ☐ Others: _____ | | |

13. Name a person you consider to be a hero and state your why?

14. Name "true life" character you consider to be interesting and/or your favourite and why?

15. What trips have you taken and what trips would you like to take if you were allowed to choose.

16. List the chores and responsibilities you must carry out at home.

17. What career do you find interesting enough to pursue?

18. What are **three** things you do best while in school?

19. What are **three** things you need help with while in school?

20. Do you make friends easily? List **three** friends whom you consider to be close to you.

21. What subject(s), not offered at your school, would you like to take?

22. Is there something about yourself or some special quality you have that you may want to share with your teacher(s) and classmates?

Appendix F-1

Sample Checklist

Student: _____ Date: _____

Strength: _____

True? Behaviour

- ☐ **Humour**—Exceptionally keen sense of the comical, the bizarre, the absurd.
- ☐ **Motivation**—Intense desire to know, do, feel, create or understand.
- ☐ **Interests**—Ardent, sometimes unusual, passionate, sometimes fleeting.
- ☐ **Communication/Expressiveness**—Extraordinary ability to convey meaning or emotion through words, actions, symbols, sounds, or media.
- ☐ **Inquiry**—Probing exploration, observation or experimentation with events, objects, ideas, feelings, sounds, symbols, or media.
- ☐ **Problem Solving**—Outstanding ability to bring order to chaos through the invention and monitoring of paths to a goal; enjoyment of challenge.
- ☐ **Sensitivity**—Unusually open, perceptive, or responsive to experiences, feelings and to others.
- ☐ **Intuition**—Sudden recognition of connections or deeper meanings without conscious awareness of reasoning or thought.
- ☐ **Reasoning**—Outstanding ability to think things through and consider implications or alternatives; rich, highly conscious, goal-oriented thought.
- ☐ **Imagination/Creativity**—Extraordinary capacity for ingenious, flexible use of ideas, processes, or materials.
- ☐ **Memory/Knowledge/Understanding**—Unusual capacity to acquire, integrate, retain, and retrieve information or skills.
- ☐ **Learning**—Ability to acquire sophisticated understanding with amazing speed and apparent ease.

(Adapted from *Gifted Education: A Resource Guide for Teachers*, Ministry of Education, Victoria, B.C. 1995.)

Appendix F-2

Sample Checklist

Teacher Information Form—Elementary

Student's Name: _____ Grade: _____

School: _____ Teacher: _____

Signature of Teacher: _____ Date: _____

Signature of Principal: _____

Check the column that best describes the student's functioning within the regular school program. These items include a wide range of characteristics. A student is not expected to be high on all of them. Some items may not have been observable.

Section A	Low	2	3	High	Not Observable
Asks many questions, especially what, where, when, how, and why					
Solves problems on a superior level, divergently, innovatively					
Is responsible and independent					
Is creative and imaginative					
Has a keen sense of humour and a sharp wit					
Is sensitive to the feelings of others					
Applies learning from one situation to different ones					
Is able to analyse and offer positive, constructive suggestions					
Recognizes and accepts the validity of different points of view					
Produces work that is original, vital, clever, and unique					
Can express and defend point of view					
Sees relationships and is able to draw sound generalizations					
Has a talent or talents in art, music, writing, drama, and/or dance					

Comments: _____

Section B

	Low	2	3	High	Not Observable
Is determined or persistent in completing tasks					
Sets realistically high standards, high goals, and high ideals for self					
Likes to organize activities and people					
Concentrates without being easily distracted					
Is able to work independently; requires little direction					
Is persistent in opinions and often self-assertive					
Pursues questions of right and wrong; is concerned with fairness					
Becomes bored easily with repetitious tasks					

Comments: _____

Section C

	Low	2	3	High	Not Observable
Has an advanced vocabulary; expresses self well					
Knows a great deal about many things					
Is a keen and alert observer; usually "sees" more or "gets more" out of a story, film, etc., than others					
Reads many books on various topics					
Uses TV or other media effectively as sources of information					
Reasons things out for self					
Is interested in issues such as race, religion, politics, sex, ecology					
Is interested and concerned about world problems					
Has a ready grasp of underlying principles and can quickly make valid generalizations about events, people, or things					
Usually prefers advanced level books, especially biographies					

Comments: _____

Appendix G

Policy 2.6

Special Education Policy Manual

Department of Education and Culture 1996

Policies are subject to change over time and readers should ensure that this policy is the most current.

Individual Program Plan (IPP)

An individual program plan (IPP), based on the student's strengths and needs, will be developed and implemented for every student for whom the provincial curriculum outcomes are not applicable and/or attainable.

2.6 Guidelines

Each school district will establish procedures and guidelines for the development and implementation of individual program plans.

Teaching practice necessarily includes the use of a variety of teaching strategies to enable students to meet or to extend their learning beyond the designated outcomes. The manipulation of additional variables such as time, classroom organization and evaluation techniques will also be necessary to meet individual student needs. Provided the designated outcomes are not substantially altered, these procedures do not require an individual program plan, although specific changes should be documented in the student's cumulative file, e.g., oral evaluation in place of written evaluation, curriculum compacting (Policy 2.2, Stage 4).

When the manipulation of instructional variables is not sufficient to address student needs in the context of the prescribed curriculum, the program planning team is responsible for the development of an individual program plan. Program plans should be developed in the context of the broad curriculum outcomes for each core program. For students whose special needs include non-academic areas, the individual program plan should detail the outcomes involved and the supports and services needed to enable the student to reach these outcomes. (Appendix I: Definitions)

2.6 Procedures

The components of the individual program plan for each student should include the following:

- A summary of student strengths and needs

The summary should include information on the student's physical, behavioral, social, and academic strengths and needs. A brief summary of the types of assessments used in determining strengths and needs should be included in the individual program plan, while more complete results/reports should be kept in the student's confidential file.

- Annual individualized outcomes (goals)

Annual individualized outcomes are statements of expected achievement over a one-year period. These statements are estimates of future performance based on past achievement, present performance, and priority areas of desired development. Priority areas should be established in consultation with parents through the program planning team process to ensure a co-ordinated effort between the home and school.

- Specific individualized outcomes (objectives)

Specific individualized outcomes are statements outlining specific steps which lead to the attainment of the broader outcomes. Specific outcomes are arranged according to the developmental process involved and the expected progression toward identified broad outcomes. The specific outcomes are the basis for the evaluation of the student's growth toward attainment of the annual individualized outcomes. Specific outcomes should be grouped under curriculum outcomes in each program where applicable.

- Recommended services

These services may be divided into three categories:

- (a) educational strategies (e.g., specific instructional strategies, organizational techniques, evaluation procedures);
- (b) special materials/equipment (e.g., computers, alternative formal materials, optical aids, specially designed furniture);
- (c) human resources (e.g., resource teachers, speech-language pathologists, physiotherapists, teacher/student assistants, mentors, etc.).

- Responsibility areas

Specific responsibilities for teaching, modifying/extending and evaluating objectives must be assigned to individuals with the appropriate professional competence. However, the overall responsibility for the evaluation of the plan rests with the team as a whole. The team is responsible for ensuring that the plan outlines a comprehensive and cohesive approach to meeting student needs.

- Review dates

The program planning team is responsible for setting dates for the review of the overall plan. However, individual team members are responsible for the ongoing evaluation of their designated responsibility areas. The overall plan should be reviewed at least twice in each year. Dates for the review of the program plan should be set at each program planning team meeting.

- Signatures

The IPP is signed at a meeting with the parents at which the team members from the school or representatives of that group review and discuss the program. The signatures indicate agreement on the IPP. In cases where parents/guardians do not agree with the program plan, an appeal procedure may be initiated. However, all efforts should be made to resolve disputes through discussions, and mediation before a formal review (appeal) is required (Policy 1.8). If the school is experiencing difficulty in having the parents attend a meeting, the Supervisor of Special Services should be notified. Parents should be provided a copy of the IPP.

2.6 Education Act: Sections 25, 26, 38, 64 (2)

Other References: *Public School Programs* 1.9.3, Department of Education and Culture 1993-95.

The Nova Scotia Student Cumulative Record Folder Completion Instructions, Department of Education and Culture, 1988.

Appendix H

Challenge for Credit

Interim Policy Guidelines

Nova Scotia Department of Education and Culture 1997

Policies are subject to change over time and readers should ensure that this policy is the most current.

Background

The Department of Education and Culture recognizes that students may have already acquired the knowledge, skills and attitudes that an existing course seeks to develop. Challenge for credit provides a process for students to demonstrate that they have achieved learning outcomes as defined in the *Public School Programs* and the curriculum guide for a directly-related course.

Policy

1. All students currently enrolled in a public school in Nova Scotia may challenge for credit.
2. Challenge for credit is applicable only to designated Nova Scotia senior high school courses.
3. Students may challenge for any number of credits, but no more than two credits at each grade level for a total of six will count towards a High School Graduation Diploma.
4. Courses for which students have already received credit are not eligible for challenge for credit. Challenge for credit is not intended as a way to improve a course mark. *Similarly, challenge for credit is not intended as a process by which a student can challenge a lower level course in the same subject at the same grade level as another course which the student has not completed successfully.*
5. Successful challenges for credit will be given a mark.

Guidelines

Challenge for credit will involve a four step process: (1) notice of intent to challenge (2) consultation (3) evidence of learning (4) evaluation.

1. Notice of Intent to Challenge

A student completes a notice of intent form as prescribed by the school board.

2. Consultation

After a student has given notice of intent to challenge for credit, a meeting shall be held with the student, his/her parent or guardian (if applicable), and school personnel. If a number of students challenge for the same credit, the meeting may be held in a group format. The purpose of the meeting is to outline the process and the requirements for a successful

challenge. Students should consider whether it is in their best interests to proceed with the challenge.

Schools may wish to provide a seminar for students and parents to outline challenge for credit requirements, process, and related procedures.

3. Evidence of Learning

Students will provide evidence that they have acquired the learning necessary to meet the outcomes of the course. The evidence should be organized based on the prescribed outcomes and may include the following:

- (a) a portfolio containing the description of activities, experiences, readings, and other items as necessary which indicate the attainment of the outcomes
- (b) a demonstration or performance, if applicable
- (c) the written support of at least one person with recognized expertise in the area of the challenge

4. Evaluation

Challenge for credit is intended to be a thorough process. To ensure adequate and valid evaluation of achievement, a variety of strategies should be used. Appropriate evaluation strategies include the following: reviewing a portfolio of student work; laboratory/skills demonstration; oral/aural performances; tests/exams; interviews; documented learning.

The evaluation of the challenge for credit is carried out by a school or teaching personnel of the region or school. Subject area specialists *with acknowledged expertise* outside of the school (e.g., artists, musicians, mathematicians) may be invited *by the board or school* to assist teaching personnel responsible for the evaluation.

Time Frame

School Board policy may establish specific times for accepting and reviewing challenge applications. Regions may opt for a "Challenge Week" at the start of the school year or a semester. Others may decide challenges must be completed at specific times so that courses can be planned for the upcoming year. If a small number of students are requesting challenge, scheduling the challenge process at the convenience of all participants may be more manageable than setting specified times.

It is recommended that schools provide a seminar on available opportunities for challenge for credit for students and parents so that they can become familiar with requirements, student responsibilities, the challenge process and related procedures.

It is recommended that the time frame for the process should not normally exceed four weeks from the time of the consultation step.

Exceptions

Externally developed courses recognized for credit by the Department are not eligible for the challenge for credit process (e.g., International Baccalaureate Program).

Appendix I

Independent Study Credits

Interim Policy Guidelines

Nova Scotia Department of Education and Culture 1997

Policies are subject to change over time and readers should ensure that this policy is the most current.

Background

The Nova Scotia Department of Education and Culture recognizes the importance of providing students with opportunities for working independently and accepting responsibility for their own learning. Such experiences help students to develop the knowledge, skills, and attitudes necessary for lifelong learning.

Independent study credits are intended to

- provide increased opportunity for individualization of programming
- recognize and provide credit to students *who initiate and develop, with the advice of the teacher*, courses tailored to their needs, abilities, and interests
- provide opportunities for greater flexibility in the senior high program

Independent study credits are not intended to replicate any existing course in the public school program.

It is expected that schools will provide appropriate opportunities for students who wish to earn independent study credits. Independent study credits are an option for **all** students.

Policy

1. A student may be granted one independent study credit in each of grades 11 and 12. Each of these credits may comprise two half-credits.
2. A student may earn two independent study credits towards graduation.
3. Independent study credits may be granted for successful completion of grade eleven and twelve courses and approved by the supervising teacher, the guidance counsellor and the principal.
4. A student may receive an independent study credit in addition to credit for a *public school program* course in the same subject at the same grade level when the independent study extends the curriculum of a *public school program course the student has already taken*. For example, a grade 11 history student may wish to pursue an independent study credit comprising in-depth study of the Holocaust; a grade 12 physics student may wish to do an in-depth study of quantum mechanics; a grade 11 English language arts student may wish to do an in-depth study of South African literature.

5. Students will receive a mark for independent study credits.
6. Courses developed as independent study credits would normally be completed in a minimum of 110 hours for full-credit courses, 55 hours for half-credit courses.

Guidelines

Each school should take a leadership role in preparing students for independent study.

1. *The student is responsible for initiating the independent study credit process and satisfying all of its requirements.* It is the responsibility of the student to
 - demonstrate an ability to work independently with minimal direction
 - design and develop, with advice and guidance from the supervising teacher, a plan for completing the independent study credit course including a course outline, learning and assessment plan
 - organize and complete the learning experiences and activities involved in this plan
2. It is the responsibility of the school and supervising teacher to
 - *ensure that the independent study credit is in the best interests of the student*
 - advise and guide the student in the design and development of the course outline and a detailed learning and assessment plan
 - determine the criteria for successful completion of the independent study credit course
 - provide initial instruction as necessary to prepare the student for independent study
 - monitor and support the student's progress in following the approved plan for independent study
 - assess and evaluate the student's work
3. Permission for a student to pursue an independent study credit is granted at the discretion of the school within Department guidelines. The student's application to pursue an independent study credit must be approved by
 - the supervising teacher
 - the guidance counsellor
 - the principal

Components of the Application for Approval of an Independent Study Credit Course Request

Applications should include the following components:

- student's name
- name of supervising teacher
- name of course, grade level, and credit type of course
- date of application for approval
- intended dates of commencement and completion
- rationale (identifying the goals and learning needs that will be met by independent study)
- summary (overview) of the independent study course

Course Outline

- expected learning outcomes
- relationship of course elements to essential graduation learnings
- course content and organization with time lines
- learning resources to be used
- detailed learning and assessment plan
- learning experiences to be undertaken
- strategies/requirements for record keeping, e.g., learning log
- assessment and evaluation procedures: strategies for assessing processes and products; time line for work to be submitted; demonstration of results of learning, e.g., performance tasks; sharing products with an audience; keeping a portfolio of work; written reflection on learning attained through independent study, criteria for evaluation (awarding of the final mark)

Course Coding

The Department of Education and Culture will designate a course code that uniquely identifies the course. Schools should forward approved Independent Study Credit applications to English Program Services to obtain a course code:

English Program Services
Department of Education and Culture
PO Box 578
Halifax NS B3J 2S9
Fax: (902) 424-0613

Appendix J

Brainstorming Techniques

Educational Problem-Solving Process

Getting Ready

- Appoint or elect a Team Facilitator.
- The Facilitator arranges the time and location of the meeting and informs the other Team Members.
- One of the Team Members acts as the Recorder but also fully participates in the discussion.
- The Facilitator helps to keep the Team focussed on the task and ensures that all Team Members have an equal opportunity to contribute.
- Distribution of the referral information to Team Members prior to the meeting increases the effectiveness and efficiency of the meeting.

The Meeting

- The meeting should last approximately thirty minutes.
- The meeting is divided into seven steps as follows:

Step 1 The Facilitator states the reason for the meeting and reviews the process to be followed.

Step 2 The Teacher gives a brief summary of the problem area(s).

Step 3 This step is one of clarification. Team Members have the opportunity to ask the Teacher questions that will clarify the problem(s) and the circumstances. The Facilitator uses a round robin technique and continues until all questions have been asked.

Step 4 The Facilitator uses a round robin brainstorming approach in which the Team Members generate suggestions for the Teacher's consideration. Throughout this step, the following should be kept in mind:

- Team Members direct suggestions to the Facilitator.
- This is not a time to ask the Teacher, "Have you ever tried ... ?"
- The Teacher does not interact with other Team Members at this time.
- Suggestions should be given as brief statements.

- A Team Member is free to pass on any round.
 - The Recorder writes the suggestions on chart paper.
 - The teacher has an opportunity to clarify.
- Step 5 The Teacher assigns a number (1, 2, or 3) to each of the suggestions. Those assigned a "1" are suggestions the Teacher feels would be helpful immediately. A "2" is assigned to those suggestions deemed helpful in the longer term. A "3" is assigned to those suggestions that have already been tried or that are seen by the Teacher as not being feasible in the situation.
- Step 6 The Facilitator follows up by going over the suggestions numbered "1" or "2" that now become the short and longer term action plan. Together, the Team decides who is responsible for following up on each of the actions stated in the plan.
- Step 7 A meeting date is set to review progress and arrangements are made to have the plan written up and distributed as required.

Advantages of the Process

- It uses time efficiently and effectively.
- It acknowledges the importance of the Teacher in the decision-making process.
- It ensures that all Team Members contribute to the process.
- It provides a mechanism for bringing together a wealth of experience and expertise in a collaborative process with the purpose of improving student success.

Notes

Notes

Inclusive Schooling and School-Wide Enrichment (pp 5–10)

1. Phi Delta Kappan October 1998: "A Rising Tide Lifts All Ships: Developing the Gifts and Talents of All Students" pp. 105–111, 10.
2. Adapted from Armstrong (1994), Gardner (1983), and Lazear (1991), 23.
3. Armstrong (1994) for a checklist for assessing multiple intelligences, and Lazear (1991) for teaching strategies and planning, 23.
4. Globe and Mail, "Poverty a Barrier to Student Opportunity," April 26, 1997, 24.
5. For further information on assessments, see *Special Education Policy Manual*, 1996, Policies 2.1–2.5, 25.
6. *Standards for Programs Involving Gifted and Talented Students* (1989), CEC, was used as a guide in developing this section. Also used in developing this section, the document *Gifted Education: A Resource Guide for Teachers* (1995). Victoria, B.C.: Ministry of Education, 26.
7. See *Special Education Policy Manual*, Department of Education and Culture, Policy 2.5, 1996, 26.
8. See Section 25(2) *The Education Act*, 1996 and Policy 2.4, *Special Education Manual*, 1996 and Appendix E *Parent/Guardian Information Form–Elementary*, 26.
9. This section was adapted from: *Gifted Education: A Resource Guide for Teachers*, 1995. Victoria, BC: Ministry of Education, 27.

Program Planning (pp 27–50)

1. See *Education Act* 64(2) (d), 26(1) (g) and *Special Education Policy Manual*, 1996, Policy 2.2, (See Appendix G, *Individual Program Plan*)(IPP), 33.
2. *Gifted Education: A Resource Guide for Teachers* 1995, BC Ministry of Education, was used extensively in the development of this section, 34.
3. See *Education Act* 125 (1) and (2) and *Special Education Policy Manual*, 1996, Policy 3.4, 35.
4. Nova Scotia Department of Education and Culture, *Advanced Courses Interim Policy Guidelines*, January 1999, 36.

5. Many materials are available to assist teachers with this process. Among these are the following: *How to Become an Expert: Discover, Research and build a Project in Your Chosen Field*, Gibbons (1991); *The Self-Directed Learning Contract: a Guide for Learners and Teachers*, Norman (1989); *Curriculum Compacting: The Complete Guide to Modifying the Regular Curriculum for High Ability Students*, Reis, Burns & Renzulli (1992); and *Fostering Independent Creative Learning: Applying Creative Problem Solving to Independent Learning*, Treffinger & McEwen (1989), 38.

6. Information for developing multi-disciplinary themes can be found in *Planned Integrated Curriculum: The Call to Adventure*, Drake (1993); *Interdisciplinary Curriculum: Design and Implementation*, Jacobs (1989); *Learning and Loving It: Theme Studies in the Classroom*, Gamberg, R., Kwak, W., Hutchings, M., and Altheim, J. (1988); and, *The Grid: Systems and Models for Developing Programs for the Gifted and Talented*, Kaplan (1986), 39.

7. *Gifted Education: A Resource Guide for Teachers*. Victoria, B.C: Ministry of Education, 1995, 39.

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